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ABSTRACT

The goals of this assessment of electronic government information products were to: identify medium and format standards that are the most appropriate for permanent public access; assess the cost-effectiveness and usefulness of various alternative medium/format standards; and identify public and private medium/format standards that could be used for products throughout their entire information life cycle. The study utilized both quantitative and qualitative data collection activities: a survey of a cross-section of 314 government information products from 24 agencies, site visits to three federal depository libraries, meetings with four federal agencies, and interviews with six experts. Findings were analyzed in the following areas: (1) preferred mediums and format standards; (2) evaluating World Wide Web sites; (3) cost-effectiveness of formats and mediums; (4) depository library needs; and (5) public access, including permanent public access to and permanent retention of electronic government information, perspectives on permanent public access and information life cycle management from information resources management experts, and current initiatives on permanent public access and permanent retention. Appendices include lists of participating agencies, products surveyed, and experts, as well as the product assessment questionnaire and site visits data, an agency meeting agenda, and expert interview questions. (Contains 53 references.) (MES)

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APPENDIX TO THE

ASSESSMENT OF ELECTRONIC GOVERNMENT INFORMATION PRODUCTS

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Prepared under contract

by

Westat
Rockville, Maryland

for the

UNITED STATES NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE

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UNITED STATES GOVERNMENT PRINTING OFFICE
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March 30, 1999

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March 30, 1999

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Mr. Michael F. DiMario
The Public Printer
The Government Printing Office
North Capitol and H Sts. NW
Washington, D.C. 20401

Dear Mr. DiMario,

It is with great pleasure that I forward herewith a copy of the Final Report prepared by Westat, Inc., the contractor selected by the Government to undertake Phase II of the three-part study called "Assessment of Electronic Government Information Products." As you requested, the U.S. National Commission on Libraries and Information Science (NCLIS) planned and implemented this research survey, pursuant to an interagency agreement between NCLIS and the Government Printing Office (GPO), approved by the Joint Committee on Printing (JCP).

This report follows on the process begun with the congressional requirement, contained in the Senate Report on H.R. 1854, the FY 1996 Legislative Branch Appropriations Act (P.L. 104-53), to identify the measures necessary for a successful transition to a more electronic Federal Depository Library Program. That requirement resulted in a study published by the Government Printing Office in June 1996. There was a consensus, however, that additional work was required (1) to identify the electronic formats and mediums used and/or planned by Federal publishing entities, and (2) to determine whether public or private sector standards do, or could, play a stronger role in reducing the unnecessary proliferation of these formats and mediums. These questions precipitated this survey.

I am extremely pleased to note that the survey enjoyed the active support and participation of all three branches of Government. Twenty-four different Federal entities participated, including the Supreme Court, several committees of the Congress, one regulatory commission and 19 Executive Branch agencies, including most of the Cabinet Departments. In addition to this broad and diverse Federal involvement in the survey, an impressive 74 percent of the survey forms sent to the agencies were returned completed. I believe this level of interest and support is highly unusual, and could, perhaps, be construed as a reflection of agency desires to help establish a systematic baseline for measuring and monitoring the rapidly changing and evolving kinds and mix of preferred mediums, formats, and standards.

Our representatives and your staff have been in close, harmonious contact from the earliest stages of planning for the survey, right up until the final stages of review of the final report. I want to take this opportunity to thank especially both the former and present Superintendents of Documents, as well as the staffs of the present and former directors of the Library Programs Service, and the Office of Electronic Information Dissemination Service, for the superb support NCLIS and the contractor received throughout the process.

I also want to recognize the key role played by Forest Woody Horton, Jr. As consultant to NCLIS, Woody's broad knowledge of how Government works and his deep understanding of Information Resources Management helped to move the study along most effectively.

Finally, I would like to recognize the support of Vice-Chair Martha B. Gould, Commissioners C.E. ("Abe") Abramson who chairs the NCLIS Access to Government Information Committee, Joan R. Challinor, and José-Marie Griffiths, all of whom have been staunch advocates throughout. I believe you are also aware of the strong interest and support NCLIS Executive Director Robert S. Willard personally accorded this study, beginning very early with his tenure as a commissioner and extending to the present day.

The long review and analysis process of the contractor's statistical tabulations, findings, and observations has just begun. This demanding process will take some time, in part because the number of interested communities is so large, and in part because the subject matter is so technical, involving the full range of information handling formats, mediums, and standards, and quite diverse agency plans and practices. Ultimately, actions needed to be taken will most likely involve new or strengthened policies, rules, and regulations, as well as the adoption of technical standards, some of which could have legislative ramifications.

It is now the Commission's intention to begin Phase III. We will take the now completed Phase II Westat report, as well as the Phase I report completed in 1997 by the National Academy of Sciences, as points of departure. They will be reviewed and we will determine if additional fact gathering is required. We can then move forward to draw conclusions and make recommendations to the Congress and the President from the multitude of facts and expert opinions received thus far.

NCLIS will continue to consult with GPO, along with various knowledgeable individuals, interagency and special advisory groups, all of whom have been assisting us throughout the Phase I and II efforts, as we prepare a plan for the Phase III initiative. My hope is that we will keep most of the broader advisory team we have utilized thus far in place until we have completed Phase III.

Finally, I want to thank you for your personal leadership, without which we could have never moved ahead with this complex, landmark task.

Sincerely yours,

Jeanne Hurley Simon

Jeanne Hurley Simon
Chairperson

Acknowledgments

The study was performed by Westat under contract with the U.S. National Commission on Libraries and Information Science (NCLIS). The Government Printing Office commissioned this study as part of the transition to a more electronic FDLP. Westat's Task Leader was Denise Glover, and the project staff included Sarah Bennett-Harper, Debbie Alexander, and Ethel Sanniez. Libby Farris served as Westat's Project Director. Forest Woody Horton, Jr., a consultant to NCLIS, served as the Project Director. Francis J. Buckley, Jr., the Superintendent of Documents, Gil Baldwin, and T.C. Evans served as the key Government Printing Office (GPO) liaison officials throughout all phases of study design, implementation, and evaluation. Wayne P. Kelley, former Superintendent of Documents, and James D. Young, former Director of GPO's Library Programs Service, were instrumental in recognizing the need for this study and in shaping its direction. Robert S. Willard, NCLIS Executive Director, and Judy Russell, NCLIS Deputy Director, provided strong overall guidance and supervision.

Westat also wishes to thank the Depository Library Council, NCLIS Chairperson Jeanne Hurley Simon, and Vice-Chair Martha B. Gould, and the NCLIS Committee on Access to Public Information, chaired by Commissioner C. E. ("Abe") Abramson, for their interest and support. In addition, Westat expresses its deep appreciation to the 24 participating Federal agencies, especially the Chief Information Officers, the agency coordinators, the product respondents, and key officials in the agency library, printing and publishing, information technology, public affairs, and other functional offices. Finally, Westat expresses appreciation to the various experts interviewed and the depository libraries visited, all of which are listed in appropriate appendices.

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Executive Summary

> *The Federal Depository Library Program (FDLP) has served and continues to serve the American public by ensuring localized access to Federal Government information. The mission continues to be as important today to the fundamental success of our democracy as it was when the FDLP was created. The FDLP's original mandate, to assist Americans regardless of economic, education, or geographic considerations, is one that must not be lost as we strategically and thoughtfully use the tools of the electronic age to enhance that mandate.*
>
> Letter to Michael F. DiMario, the Public Printer, from Senators John Warner and Wendell Ford of the Senate Committee on Rules and Administration, May 24, 1996.

Background

Congress established the antecedents to the Federal Depository Library Program (FDLP) in the Act of 1813 to ensure that the American public has access to its Government's information. The mission of the FDLP, part of the Superintendent of Documents (SuDocs) in the Government Printing Office (GPO), is to assure current and permanent public access to the universe of information published by the U.S. Government. Depository libraries safeguard the public's right to know by collecting, organizing, maintaining, preserving, and assisting users with information from the Federal Government. GPO provides that information at no cost to designated depository libraries throughout the country. These depository libraries, in turn, provide local, no-fee access to Government information in all formats in an impartial environment with professional assistance. Any member of the public can visit these depository libraries and use the Federal depository collections.

In order to administer the FDLP, as required by the enabling legislation for the program, 44 U.S.C. Chapter 19, the SuDocs is responsible for the acquisition, classification, format conversion, dissemination, and bibliographic control of tangible and electronic Government information products; the inspection of depository libraries; and the continuing education and training initiatives that strengthen the ability of depository library personnel to serve the public. An emerging new responsibility is to ensure that electronic Government information products disseminated through the FDLP, or incorporated in the FDLP Electronic Collection, remain permanently accessible to the public. Under 44 U.S.C., Sections 1901-1903, and Office of Management and Budget (OMB) Circular A-130, Management of Federal Information Resources, Federal agencies should make all their publications in all formats available to SuDocs for distribution to depository libraries.

This study to assess electronic medium and format standards for the creation and dissemination of electronic information products is an essential step toward ensuring a successful and cost-effective transition to a more electronic FDLP. The three goals of this assessment were to:

- Identify medium and format standards that are the most appropriate for permanent public access;
- Assess the cost-effectiveness and usefulness of various alternative medium and format standards; and
- Identify public and private medium and format standards that are, or could be used for products throughout their entire information life cycle, not just at the dissemination or permanent public access stage.

The Superintendent of Documents will use the results of this work effort to continue to plan and implement the transition to a more electronic FDLP. The five major *specific objectives* are:

- First, with respect to *electronic publishing practices* and plans for Federal agencies (including ways in which the FDLP can best accommodate them), the objective is to provide an analysis of current practices as well as future plans for creating, disseminating, and providing permanent public accessibility to electronic information products, and to identify the standards for software and electronic mediums and formats that are used throughout the product's information life cycle, from creation to archiving but especially at the stage of dissemination for permanent public access.
- Second, with respect to *cost-effectiveness* of various dissemination mediums and formats that are, or could be utilized, the objective is to gather information on standards (whether mandated or consensual) that will assist the FDLP in making near-term decisions regarding the cost-effectiveness of alternative mediums and formats for all FDLP participants. This information should also assist participants in long-term planning for permanent public accessibility, and the collection and analysis of overall information life cycle costs.
- Third, with respect to the *practical utility* of various electronic mediums and formats to depository libraries and the public, the objective is to identify *preferred standards* used in various mediums and formats that depository libraries will need to support.
- Fourth, with respect to utilizing standards employed in mediums and formats that can be used throughout *all stages of the information life cycle* (including creation, composition, computer terminal display, encryption, secure digital signature with non-repudiation, and secure transmission capabilities), for electronic dissemination, but especially permanent public accessibility, the objective is to assess standards for basic security services in order to provide for secure and reliable transmission and document interchange.

- Fifth, with respect to standards that are being developed and used *in the private sector*, the objective is to identify existing and planned standards for the purpose of determining what the FDLP must do to accommodate their adoption in terms of hardware/software requirements, staff and user education and training, and budgetary impacts.

Methodology

The study utilized both quantitative and qualitative data collection activities: a survey of a cross-section of 314 Government information products from 24 agencies and interviews with experts. The response rate for the survey was 74 percent. *This cross-section of products was not a randomly selected sample due to cost and time constraints.* Instead, NCLIS and GPO—assisted by various groups, including the library associations represented by the Inter-Association Working Group on Government Information Policy (IAWG), the Federal Library and Information Center Committee (FLICC), the Depository Library Council (DLC), and the Interagency Council on Printing and Publication Services (ICPPS)—developed and refined the criteria for product selection. NCLIS, GPO, and the other organizations asked knowledgeable members of these groups to identify products that met one or more of six criteria.

NCLIS distributed the list of preliminary products to agency Chief Information Officers (CIOs) who were asked to validate and coordinate the final selections with their appropriate agency personnel. In addition, NCLIS asked CIOs to select an agency coordinator. The coordinator's role was to oversee the distribution of product questionnaires to the appropriate respondents and to encourage respondents to complete the questionnaire and return it to Westat.

Product selection was based on six criteria:

- Increased emphasis on electronic dissemination, rather than continuation of paper and microform dissemination;
- Replacement of older electronic mediums and formats with state-of-the-art technologies;
- Adoption of mandated (Government or private sector) and consensual (common agency practice) medium and format standards;
- Adoption and use of preferred mediums or formats that have widespread support from agency, depository library, and user communities;
- Exemplified cost-effective mediums and standards, especially those that can be used throughout the entire information life cycle, rather than the use of expensive customized or shelf packages; and

- Exemplified awareness of the important impact of medium and format decisions on permanent accessibility, authentication, and/or security encryption protection.

The survey requested information on four main topics:

- General information about the product and agency that produced it.
- The product's *current* profile including the kinds of data the product contains, mediums in which it is produced, formats and online approaches used (if applicable); and searchability and retrievability of the product.
- *Future* plans for the product including changes in its data, mediums, and formats.
- Other issues including metadata, permanent public access, permanent retention, authenticity, updating/upgrading plans, user fees, licensing, and public domain.

The qualitative data collection included site visits to three depository libraries, meetings with representatives of five Government agencies, and telephone interviews with six experts. The qualitative data collection included site visits, agency meetings, and expert interviews. Westat conducted site visits to three Federal depository libraries:

- McKeldin Library, University of Maryland College Park, College Park, Maryland
- Washington College of Law Library, American University, Washington, D.C.
- Montgomery County Rockville Regional Public Library, Rockville, Maryland

The purpose of the visits was to discuss the effects of the transition to a more electronic Federal Depository Library Program on the end user and on the services and resources of each library.

Meetings with agency representatives had a twofold purpose:

- To collect qualitative data about electronic Government information products, such as cost-effectiveness of standards, use of locator tools, results of user surveys, etc., that were not covered in the survey; and
- To discuss the procedures for distribution of the questionnaire.

In addition to inviting agency coordinators and respondents, the statement of work specified that Westat invite representatives of the following offices to attend the meetings:

- Public affairs or communications offices,
- Agency printing and publishing units,
- Information technology or electronic information systems offices,
- Agency libraries, and
- Relevant program offices.

The following six agencies agreed to schedule a meeting: Department of Health and Human Services, Department of Education, U.S. Supreme Court, Department of Commerce, Environmental Protection Agency, and the National Archives and Records Administration. Only four of the six agencies chose to discuss the qualitative questions at the meeting. The other two agencies discussed the questionnaire only and agreed to respond to the discussion questions in writing, although only one actually submitted their written questions.

Finally, Westat held four telephone interviews with six content experts. The experts included two webmasters (Linda Wallace from the Internal Revenue Service, and Jerry Malitz from the National Center for Education Statistics); two preservation specialists (Evelyn Frangakis from the National Agricultural Library, and Abby Smith from the Council on Library and Information Resources); and two professors in information resources management (John Bertot and Charles McClure). The purpose of expert interviews was to:

- Solicit opinions of experts on topics not adequately covered on the survey or in the agency meetings,
- Ask questions to provide a broader context in which to view the issues, and
- Explore current initiatives and future directions.

Key Findings

These findings reflect the major results of the survey and qualitative data collection:

Policy and Planning Issues

1. There is an overall lack of Government information policy guiding electronic publishing, dissemination, permanent public access, or information life cycle management, especially as information policy relates to agency missions. Also, there is a lack of overall coordination of these initiatives at the Governmental, branch, or even agency level (pp. 68-69).
2. Responsibility for electronic publishing within agencies is decentralized, diffuse, and unclear. Some agencies either could not

identify or had difficulty identifying the proper respondent within their own agency, or even the person who was responsible for the product (pp. 11 and 14).

3. Some Government agencies are monitoring the information needs of their users to enhance *current* access to electronic Government information products (p. 65).
4. There is a lack of specific planning for product development and technological migration (pp. 34-36; table 23 on p. 42).
5. There is a lack of planning for or consideration of web design approaches that comply with the Americans with Disabilities Act (ADA) (table 6a, p. 29).

Permanent Public Access

6. The concept of permanent public access (PPA) is not well understood. Respondents also had difficulty distinguishing between PPA for electronic products and archiving electronic Federal records with the National Archives and Records Administration (tables 18-20, pp. 39-40).
7. Metadata and their importance to public access are not well understood, particularly as they may affect PPA. Only 27 percent of respondents reported having a metadata record for the products surveyed (table 19, p. 39).
8. For some products, PPA results from the agencies' use of a host disseminator, such as GPO Access (p. 11).

Authenticity

9. There is a lack of understanding of what ensuring authenticity entails, and a lack of planning for or consideration of ensuring authenticity of electronic Government information products (table 21, p. 41).

Product Characteristics

10. Fifteen percent of the products surveyed are not in the public domain, for all or part of the product (table 27, p. 45). In addition, user fees are charged for 30 percent of the products (table 24, p. 43).
11. The most prevalent types of mediums are the web, paper, CD-ROM, and bulletin board systems (table 3a, p. 22); the most prevalent formats are HTML, PDF, GIF, JPEG, TIFF, and ASCII (table 4a, p. 25).
12. The most prevalent types of data contained in the products surveyed are textual, numerical, bibliographic, and graphical (tables 2a and 2b, p. 20).

Standards

13. There is a lack of standardization for producing Government information products on CD-ROM (e.g., installation instructions, user documentation) (p. 55).
14. The most prevalent medium and format standards identified in the survey are common agency practice rather than agency-mandated (tables 3b, 4b, 6b, pp. 23, 26, and 30).
15. Some Government agencies have established guidelines or best practices for presenting and organizing Government information products on the web, although full compliance with the guidelines is a goal that has not yet been achieved (p. 64).
16. Some Government agencies are exploring a range of innovative formats and web design approaches for electronic Government information products (p. 57).

Next Steps

As a followup effort, NCLIS indicated that they will use these findings as a point of departure and analyze them in greater depth. It is expected that this followup effort will result in broad conclusions and recommendations to the President and Congress about how the problems and challenges revealed in this study can be constructively addressed to improve current and future public access to electronic Government information.

1 Introduction and Background

Since 1813, the American public has benefited from the ability to gain free access to Federal Government information. This unique American right to no-fee access to Government information is made possible through the Federal Depository Library Program (FDLP) of the Superintendent of Documents (SuDocs) in the Government Printing Office (GPO). The FDLP has significantly contributed to creating an informed, educated, and culturally enriched U.S. citizenry.

This introduction provides a brief overview of the FDLP and background information on the purpose and objectives of this study to assess electronic Government information products.

The Federal Depository Library Program

The mission of the Federal Depository Library Program is to assure current and permanent public access to the universe of information published by the U.S. Government. The FDLP was established by Congress to ensure that the American public has access to its Government's information. Depository libraries safeguard the public's right to know by collecting, organizing, maintaining, preserving, and assisting users with information from the Federal Government. The Government Printing Office provides Government information at no cost to designated depository libraries throughout the country. These depository libraries, at their own expense, provide local, no-fee access to Government information in all formats in an impartial environment with professional assistance. Any member of the public can visit these depository libraries and use the Federal depository collections.

Products distributed by GPO for depository library collections include all electronic Government information products that are of public interest or educational value. By law, the FDLP excludes those products that are solely for administrative or operational purposes, classified for reasons of national security, or the use of which is constrained by privacy considerations (GPO, 1998, p. 4).

In order to administer the FDLP, as required by the enabling legislation for the program, 44 U.S.C. Chapters 17, 19, and 41, the SuDocs is responsible for the acquisition, classification, format conversion, dissemination, and bibliographic control of tangible and electronic Government information products; the inspection of depository libraries, and the continuing education and training initiatives that strengthen the ability of depository library personnel to serve the public. An emerging new responsibility is to ensure that electronic Government information products disseminated through the FDLP, or incorporated in the FDLP Electronic Collection, remain permanently accessible to the public. Under 44 U.S.C., Sections 1901-1903, and Office of Management and Budget (OMB) Circular A-130, Management of Federal Information Resources, Federal agencies should make all their publications in all produced formats available to SuDocs for distribution to depository libraries.

How the Federal Depository Library Program Works

GPO provides Government information at no cost to designated depository libraries throughout the country. These depository libraries, at their own expense, provide local, no-fee access with professional assistance to this information in all formats. Access to Federal Government information is available through more than 1,350 depository libraries located throughout United States and its territories. Fifty-three of the depositories are regionals, and the remaining are selective depositories. The regional libraries receive and maintain everything that is distributed through the program, unless they are superseded. The selective libraries pre-select the types of publications they wish to receive based on the specific needs and interests of the communities they serve. Of the libraries in the FDLP, approximately 50 percent are academic, 20 percent are public, 11 percent are law, 5 percent are community college, 4 percent are Federal agency, and 10 percent are special, state, court, and Federal court libraries.

Before the evolution of electronic publishing media, especially the Internet, Federal Government agencies published information almost exclusively in a centralized print environment that facilitated easy distribution to the Federal depository libraries. Now, Federal Government agencies are doing their own electronic publishing and creating and managing their own websites to disseminate a variety of Government information products. This study resulted from Congress's concerns about the short- and long-term effects of electronic publishing on the ability of all U.S. citizens to continue to gain affordable and easy access to Government information.

Background of the Study

This study to assess electronic Government information products was authorized by the Joint Committee on Printing and was sponsored by the Superintendent of Documents, U.S. Government Printing Office. The initial need for this project was identified in GPO's cooperative 1996 Study to Identify Measures Necessary for a Successful Transition to a More Electronic Federal Depository Library Program. This study (see www.access.gpo.gov/su_docs/dpos/fdlppubs.html#4) was conducted at the direction of Congress. In order to conduct the study, the Public Printer established a working group consisting of representatives from the following program stakeholders and constituents:

- GPO,
- Appropriate congressional committees,
- Congressional Research Service at the Library of Congress,
- Office of Management and Budget,
- National Archives and Records Administration,
- Federal Publishers Committee,

- Interagency Council on Printing and Publication Services (ICPPS),
- Administrative Office of the U.S. Courts, and
- Depository library community.

One of the committee's major recommendations was to assess electronic medium[1] and format standards for the creation and dissemination of electronic information products. The committee considered this assessment an essential step toward ensuring a successful and cost-effective transition to a more electronic FDLP.

Project Phases

This project is being undertaken in three phases. The first phase of the project consisted of a review by the National Academy of Science's Computer Science and Telecommunications Board (CSTB) in which CSTB developed a detailed statement of work that defined the data collection process required to conduct the assessment (see http://www.nclis.gov/info/gpo1.html).

This report is a product of Phase II of the project. GPO commissioned the National Commission on Libraries and Information Science (NCLIS) to undertake a survey and assessment of electronic Government information products. NCLIS awarded the contract to Westat, a survey research company, to undertake research and data collection from Federal agencies in all three Branches, as well as solicit the opinions of selected knowledgeable experts. The contract further called for Westat to complete an analysis of the data and expert opinions for the purpose of interpreting their general meaning and significance, including identifying broad emerging trends and patterns, and documenting findings.

In Phase III, NCLIS will identify an appropriate organization to review Phase I and Phase II findings, as well as to review the data and develop conclusions and recommendations for GPO, the Congress, and the President.

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[1] The word *medium* is used throughout this report. It refers to the physical, chemical, or biological substrate used to create, organize, store, search for, retrieve, disseminate, or permanently archive data, documents or literature, including paper, microforms, fiber optic cables, photographic film, CD-ROMs, floppy diskettes, magnetic storage devices, sound recordings, and videotape. The term *media* is *not* used in this report as the plural of "medium." *Media* is the means used to publish, communicate, disseminate, and distribute information, regardless of format, such as radio, television, magazines, office or home PCs, scholarly journals, and videotape.

Study Goals and Objectives (Phase II)

Information gathered from this assessment will be used by the Superintendent of Documents to facilitate improved public access to Federal Government information made available to Federal depository libraries and the general public through the FDLP. More specifically, for this cross-section of Government information products, the Phase II goals were to:

- Identify medium (see glossary in Appendix E for the difference between the medium and media) and format standards that are the most appropriate for permanent public access,
- Assess the cost-effectiveness and usefulness of various alternative medium and format standards, and
- Identify public and private medium and format standards that are, or could be used for products throughout their entire information life cycle, not just at the dissemination or permanent public access stage.

The Superintendent of Documents will use the results of this work effort to continue to plan and implement the transition to a more electronic FDLP. The five major *specific objectives* are:

- First, with respect to *electronic publishing practices* and plans of Federal agencies (including ways in which the FDLP can best accommodate them), the objective is to provide an analysis of current practices as well as future plans for creating, disseminating, and providing permanent public accessibility to electronic information products, and to identify the standards for software and electronic mediums and formats that are used throughout the product's information life cycle, from creation to archiving, but especially at the stage of dissemination for permanent public access.
- Second, with respect to *cost-effectiveness* of various dissemination mediums and formats that are, or could be utilized, the objective is to gather information on standards (whether mandated or consensual) that will assist the FDLP in making near-term decisions regarding the cost-effectiveness of alternative mediums and formats for all FDLP participants. This information should also assist participants in long-term planning for permanent public accessibility, and the collection and analysis of overall information life cycle costs.
- Third, with respect to the *practical utility* of various electronic mediums and formats to depository libraries and the public, the objective is to identify *preferred standards* used in various mediums and formats that depository libraries will need to support.
- Fourth, with respect to utilizing standards employed in mediums and formats that can be used *throughout all stages of the information life cycle* (including creation, composition, computer terminal display, encryption, secure digital signature with non-repudiation and secure transmission capabilities), but especially for permanent public

accessibility, the objective is to assess standards for basic security services in order to provide for secure and reliable transmission and document interchange.

- Fifth, with respect to standards that are being developed and used *in the private sector*, the objective is to identify existing and planned standards for the purpose of determining what the FDLP must do to accommodate their adoption in terms of hardware/software requirements, staff and user education and training, and budgetary impacts.

Scope and Organization of the Report

The primary data collection activities included a survey and interviews. Westat, per the requirements established by NCLIS in consultation with GPO, surveyed a cross-section of electronic information products from Federal agencies in all three branches of Government and solicited the opinions of selected knowledgeable experts. *This cross-section of products was not a randomly selected sample due to cost and time constraints.* Therefore, readers are cautioned about generalizing the findings to all electronic Government information products.

Westat surveyed electronic Government information products to determine the mediums and formats in which products are currently produced and the standards, if any, that are being used. The survey also asked respondents questions about the agency's future plans for adding or changing products, including the mediums and formats in which they will be disseminated for permanent public access.

This report is limited to presenting and discussing the survey findings and findings from qualitative site visits, agency meetings, and expert interviews. Phase III of the project will focus on drawing conclusions and recommendations based on work conducted during Phases I and II.

The report is organized in five parts: introduction and background, methodology, survey analysis and findings, qualitative findings, and discussion of quantitative and qualitative findings. Please note that Appendix E contains a glossary of terms and acronyms used on the questionnaire and throughout this report.

2 Methodology

This second part of the report discusses the following topics:

- The process of selecting a cross-section of electronic Government information products,
- Agency coordinator briefings,
- Questionnaire design and development,
- Nonresponse and data retrieval followup, and
- The methodology for the qualitative data collection activities, i.e., site visits, agency meetings, and expert interviews.

Product Selection

NCLIS and GPO—assisted by various groups, including the library associations represented by the Inter-Association Working Group on Government Information Policy (IAWG), the Federal Library and Information Center Committee (FLICC), the Depository Library Council (DLC), and the Interagency Council on Printing and Publication Services (ICPPS)—developed and refined a set of criteria for product selection. NCLIS, GPO, and the other representatives asked knowledgeable members of these groups to identify products that met one or more of the following six guidelines:

- Increased emphasis on electronic dissemination rather than continuation of paper and microform dissemination;
- Replacement of older electronic mediums and formats with state-of-the-art technologies;
- Adoption of mandated (Government or private sector) and consensual (common agency practice) medium and format standards;
- Adoption and use of preferred mediums or formats that have widespread support from agency, depository library, and user communities;
- Exemplified cost-effective mediums and standards, especially those that can be used throughout the entire information life cycle, rather than the use of expensive customized or shelf packages; and
- Exemplified awareness of the important impact of medium and format decisions on permanent accessibility, authentication, and/or security encryption protection.

The products were not randomly selected; therefore, readers are cautioned about generalizing the findings to all electronic Government information products.

In April 1998, NCLIS distributed the preliminary list of products to agency Chief Information Officers (CIOs), who were asked to validate and coordinate the final selections with appropriate agency personnel. In addition, NCLIS asked CIOs to select an agency coordinator. The coordinator's role was to oversee the distribution of product questionnaires to the appropriate respondents and to encourage respondents to complete the questionnaire and return it to Westat. (See Appendix B for a list of coordinators who participated in this study.)

The final product list included 328 products from 24 agencies (Appendix C). Over the course of the data collection, the number of products decreased from 328 to 314 for the following reasons:

- Several products were discontinued and no longer exist.
- Several products were in paper only and agencies had no plans to migrate them to an electronic medium; therefore, they fell outside the scope of this study.
- Agency coordinators could not identify respondents for some products, so there was no one to complete the questionnaire.
- Several questionnaires were undeliverable due to unknown or incorrect respondent addresses; no alternate respondent could be located in a few cases.

Coordinator Briefings

NCLIS and GPO planned and conducted two coordinator briefings in June and July 1998, and asked Westat to attend them (see Appendix A for agenda). The purpose of these briefings was to:

- Provide an overview of the study including background, purpose, goals, and schedule,
- Discuss their specific tasks,
- Review the draft questionnaire with coordinators and solicit their input on changes,
- Collect their final list of products, and
- Thank them for their participation and cooperation.

Coordinators were asked to:

- Assist Westat in pretesting the survey instrument,
- Identify and brief appropriate internal participating offices,
- Identify product respondents for survey followup,
- Schedule and participate in voluntary agency meetings with Westat,
- Distribute questionnaires to agency respondents,
- Ensure timely completion and submission of survey instruments, and
- Cooperate with Westat on followup.

Only a few coordinators brought their final selections to the agency meetings; most agencies needed much more time to review and finalize their product selections. The questionnaire review also served as an informal pretest of the questionnaire.

Questionnaire Design

NCLIS, with consultation from GPO, developed the initial five-page list of questions. This list of questions was included as an appendix to the statement of work. Westat worked with GPO and NCLIS from June through July to expand and refine the list of questions to a 13-page instrument with appropriate instructions, examples, skip patterns, open-ended questions, please-specify questions, etc. Westat pretested the questionnaire informally at the two coordinator briefings. The coordinators helped Westat to clarify some questions, expand the format choices, and add a few more questions.

Westat conducted a more formal pretest with personnel from six Government agencies. These pretests led to the following substantive changes in the questionnaire:

- Clarification of instructions and wording of several questions,
- Addition of more format options,
- Addition of the definition of "product" at the beginning of the questionnaire, and
- Clarification of definitions included in the glossary.

Westat, with final approval by NCLIS and GPO, finalized the questionnaire by mid-August 1998. (See Appendix D for the cover letters and Appendix E for the final questionnaire.)

Distribution of the Questionnaires

During the last week of September and the first week of October, Westat distributed the questionnaires to 23 agencies through the agency coordinators. On October 9, 1998, NCLIS requested that Westat add more products to the survey by including a 24th agency, the Securities and Exchange Commission (SEC).

Westat created a database of products and corresponding coordinators or respondents and their addresses, phone and fax numbers, and e-mail addresses, and prepared and mailed packets to the agency coordinators. The agency coordinators were responsible for ensuring that each packet was sent to the appropriate product respondent in a timely fashion. These packets included the following materials for each product that was to be surveyed:

- Cover letter to coordinator,

- Cover letter to respondent,
- Questionnaire,
- Glossary of terms used in the questionnaire, and
- Postage-paid return envelope.

A few agency coordinators requested that Westat send questionnaires directly to their product respondents and a copy of the respondents' packets to the coordinators themselves. Westat sent questionnaire materials directly to the respondents at the Department of Commerce, the Department of the Interior, the Executive Office of the President, and the U.S. Congress. These respondent packets included the following materials:

- Cover letter to respondent,
- Questionnaire for each product he/she was assigned to survey,
- Glossary of terms used in the questionnaire, and
- Postage-paid return envelope.

In addition, the Department of Health and Human Services asked Westat to send an e-mail message to the individual product respondents notifying them that they could download the final version of the questionnaire and cover letters from the PDF file located on the NCLIS website at http://www.nclis.gov/news/nclisqux.pdf in order to complete the questionnaire.

Followup for Nonresponse, Data Retrieval, and Inconsistency

Westat made the first calls for nonresponse to agency coordinators. These calls began in early November and continued through mid-December. In addition, NCLIS sent periodic coordinator bulletins to keep coordinators updated on the progress of the study and to encourage respondents—through the coordinators—to complete questionnaires and return them to Westat.

Westat began a second round of nonresponse followup calls to respondents from mid-December through the end of January 1999. From mid-November through the first week in January 1999, Westat made calls directly to respondents for data retrieval (i.e., missing data) and inconsistencies (i.e., a respondent checked "yes" to one question, but the next question was answered in a way that suggested a "no" answer to the first question).

Approximately 40 percent of the questionnaires required some type of data retrieval followup for one or more questions. Some questions, such as 16, 18-19, and 21a, concerning metadata, permanent retention, authenticity, and the product's supporting technology, presented particular problems. Westat added a "don't know" category to these questions as a result of the nonresponse data retrieval. In addition, most respondents skipped questions 13d, 14d, and 15d about long-term plans for changing the product. Data retrieval phone calls and discussions with agency coordinators suggest respondents skipped these questions because agencies had not yet developed long-term plans.

The calls to respondents for data retrieval and data inconsistency revealed the following reasons for nonresponse:

- Did not know the answer.
- Could not identify anyone who knew the answer.
- Did not understand the question or the concept; using glossary did not help.
- Did not have time to research the answer; had other work priorities.

In a few instances, it was clear that the agency was not in a good position to respond to the questionnaire, in part because they rely on another agency, vendor, or contractor to provide electronic access to their products. Sometimes these "host disseminators," such as GPO, assisted in preparing the responses sent in by the publishing entity.

Observations about the data collection process. Agency coordinators had difficulty locating a single point of contact from each agency sub-unit who was knowledgeable about the range and type of electronic information products created for the agency. Furthermore, due to the nature of the survey questions, product respondents had to coordinate responses to some questions with personnel who often did not work in their program areas. This process required respondents to identify personnel with whom they appeared to have little prior contact, such as records managers, information technology staff, and staff in planning offices, in order to respond to these questions. In some cases, this extra step discouraged respondents from seeking answers to these questions, so questions were left unanswered. Also, agencies whose coordinators could not attend the coordinator briefings and agencies that did not participate in the agency meetings had more problems with data consistency than did other agencies.

Methodology for Qualitative Data Collection

Site Visits to Depository Libraries

The qualitative data collection included site visits, agency meetings, and expert interviews. Westat conducted site visits to Federal depository libraries from July 30 through September 9, 1998. The statement of work (Appendix J) specified that Westat visit three libraries: one regional academic, one law, and one public. Furthermore, GPO suggested that Westat visit the following specific libraries in the Washington, D.C., metropolitan area:

- McKeldin Library, University of Maryland College Park, College Park, Maryland
- Washington College of Law Library, American University, Washington, D.C.
- Montgomery County Rockville Regional Public Library, Rockville, Maryland

The purpose of visits was to discuss the effects of the transition to a more electronic Federal Depository Library Program on the end user and on the services and resources of each library. The interview questions, which were based on readings and discussions with GPO and NCLIS, covered three broad areas:

- What key issues or concerns do you have about users accessing and using electronic Government information products?
- What are your concerns about providing access to electronic Government information products?
- What specific ideas do you have for improving public access to online and electronic Government information products in your library?

The site visits were audiotaped. In addition, the libraries gave Westat representatives a tour of the facilities. (See Appendix F for a list of the specific interview questions, the names of all interviewees, and detailed site visit notes.)

Site visit observations. In addition to the small number of libraries visited, the problems and concerns of librarians in the D.C. metropolitan area may not be representative of those experienced by librarians at most depository libraries, especially the selective depositories. Some smaller selective depository libraries that are located in more remote areas as well as some of the larger urban selective depositories might have fewer resources (e.g., fewer computers and trained librarians, training funds, and options for low-cost Internet providers).

Purpose and Procedures for Agency Meetings

Meetings with agency representatives were held between September 15 and September 24, 1998. The purpose of the meetings was twofold:

- To collect qualitative data about electronic Government information products that were not covered in the survey, such as cost-effectiveness of standards, use of locator tools, results of user surveys, etc.; and
- To discuss the questionnaire and data collection procedures for distribution of the questionnaire.

In addition to inviting agency coordinators and respondents, the statement of work specified that Westat invite representatives of the following offices to attend the meetings:

- Public affairs or communications offices,
- Agency printing and publishing units,
- Information technology or electronic information systems offices,
- Agency libraries; and
- Relevant program offices.

Westat wrote the procedures for scheduling agency meetings and arranging for logistics, which included developing meeting protocols, agenda, cover letter, and script for interviewers to schedule meetings. We then contacted coordinators and sent them the following materials:

- Cover letter explaining purpose of meeting and their tasks,
- Meeting agenda and discussion questions,
- Press release from NCLIS with background information on the project,
- Roster of potential agency representatives who will attend meeting (to be completed by the coordinator), and
- Respondent product roster (to be completed by coordinator).

Agency meetings held. Westat contacted 15 of the 24 agencies to hold meetings. Of the 7 agencies that were not contacted, 3 had fewer than 10 products. NCLIS instructed Westat not to hold meetings with the U.S. Congress and the Executive Office of the President because NCLIS and GPO worked with them directly.

Ten of the 16 agencies did not respond to Westat's request to schedule a meeting. The following six agencies agreed to schedule a meeting:

- Department of Health and Human Services
- Department of Education
- U.S. Supreme Court
- Department of Commerce
- Environmental Protection Agency
- National Archives and Records Administration

Only four of the above six agencies chose to discuss the qualitative questions at the meeting. The other two agencies wanted to discuss the questionnaire only and agreed to respond to the discussion questions in writing. However, only one of them sent in responses.

Westat audiotaped all agency meetings and took notes as agency personnel discussed the questions. (Appendix G includes the list of agencies that participated in meetings, the number of attendees, the discussion questions, and summary notes from the meetings.)

In addition to the meetings held with Westat, NCLIS and/or GPO representatives met with approximately 50 agency representatives. In these meetings, NCLIS and GPO discussed survey goals and objectives and the process for preselecting products, in addition to responding to specific questions about the survey.

Agency meeting observations. Agency participation in the entire project was voluntary but essential. As with any voluntary activity, participation is based on availability and timing. For example, many agency coordinators were unavailable to schedule meetings during the summer months, or they were available but product respondents were on vacation, which may have resulted in fewer agency meetings.

Product respondents needed to attend the agency meetings to review the questionnaire, although they were not always the *most* appropriate personnel to respond to all of the qualitative questions. The project depended upon the good faith, interest, and cooperation of agency CIOs and coordinators to participate in the meetings. Respondents and participants from the private sector are often given an honorarium for participating in similar research activities, but Federal employees are exempt from this process.

Scheduling agency meetings, calling coordinators, and preparing paperwork to send to coordinators took a considerable amount of planning and coordination and time, but it did not result in many meetings. Agencies were cooperative, but it was difficult for them to identify the "right" personnel to invite to the meetings, even though coordinators took a significant amount of time to locate product respondents from other sub-units within their agencies. Therefore, answers to the agency meeting discussion questions reflected the perspectives of only 5 of the 24 agencies surveyed.

Expert Interviews

NCLIS provided a list of experts from which Westat chose six names. Westat held four telephone interviews with the six experts between October 27 and November 24, 1998. The experts included two webmasters, two preservation specialists, and two professors in information resources management. The purpose of expert interviews was to:

- Solicit opinions of experts on topics not adequately covered on the survey or in the agency meetings,
- Ask questions raised during the agency meetings or site visits that require further explanation, or to provide a broader context in which to view the issues, and
- Explore current initiatives and future directions.

As with the site visits and agency meetings, Westat audiotaped the interviews. Appendix H provides a list of experts, interview questions, and a summary of interview notes.

3 Survey Analysis and Findings

This section of the report presents the survey findings from each of the major survey questions as they appear in the questionnaire (Appendix E). Appendix E also includes a glossary of terms and acronyms used throughout this report. The discussion and presentation will then focus on the key study questions explored on the following topics:

- Preferred medium and formats used,
- Planned medium and format changes,
- Permanent public access issues,
- Permanent retention issues,
- Authenticity, and
- Searchability, proprietary software, and licensing fees.

The final response rate was 74 percent. Respondents from 24 Government agencies completed and returned a total of 242 of the 328 questionnaires fielded. The word "respondents" refers to the 242 agency personnel who completed the questionnaire. Since each agency submitted at least two product questionnaires, the unit of analysis is the product or product respondent, not the agency (table 1). The sample was not randomly selected due to cost and time constraints. Therefore, readers are cautioned about generalizing the findings to all electronic Government information products.

Structure of the Questionnaire

The questionnaire is organized into five sections, A through E. Section A contains general information about the product and agency that produced it. Section B contains questions about the product's *current* profile including the kinds of data the product contains, mediums in which it is produced, and, if in an online medium, formats and online approaches used. This section concludes with questions on searchability and retrievability of the product. Section C relates to the *future* plans for the product and is designed to solicit information about changes in the product's data, mediums, and formats. Section D addresses the issues of metadata, permanent public access, permanent retention, authenticity, updating/upgrading plans, user fees, licensing, and public domain. The final section, E, includes one open-ended general comments question.

Section A Responses

Sections A and B of the questionnaire focus on format and medium standards that address the key objectives of the study. Section A contains general information about the product and the agency that produced it, including the name of the agency and its sub-unit, the product name and description, and the Uniform Resource Locator (URL) for the site in which the product appears. A list of the agencies surveyed and the number of product questionnaires received from each agency appears in table 1. (For a description of how products were selected, refer to the methodology section.) Appendix C contains the final list of products surveyed.

Table 1.
Number of surveys returned by each agency surveyed

Agency	Number of surveys returned
Administrative Office of the U.S. Courts	5
Department of Agriculture	19
Department of Commerce	14
Department of Defense	8
Department of Education	14
Department of Energy	12
Department of Health and Human Services	19
Department of the Interior	11
Department of Justice	8
Department of Labor	2
Department of State	3
Department of Transportation	9
Department of the Treasury	13
Environmental Protection Agency	16
Executive Office of the President	5
General Services Administration	8
Library of Congress	21
National Aeronautics and Space Administration	6
National Archives and Records Administration	10
Securities and Exchange Commission	11
Smithsonian Institution	11
Social Security Administration	4
Supreme Court of the United States	4
United States Congress	9

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Section B Responses

Section B covers the *current* product profile, including:

- How it is used;
- What types of data it contains;
- What mediums the product is available in, what is the primary medium used, and what are the agency's medium standards;
- What kinds of formats are used, what is the primary format used, and what are the agency's format standards;
- What user interfaces are supported and what web design approaches are used;
- If the electronic product can be searched and how;
- What agency hosts the product on the web; and
- How the product can be retrieved.

Readers should note that most of the survey questions asked respondents to "check all that apply"; therefore, the percentages for these questions will exceed 100 percent. Also, for the first set of tables in this section (tables 1 through 6), the response categories appear in descending order by number or percentage. Therefore, the responses will not match the order in which they appear on the questionnaire.

Types of Data Contained in Product

Table 2a shows that the frequently mentioned types of data contained in the products surveyed are textual (188 responses), followed by graphical (142 responses), numerical (141 responses), bibliographic (82 responses), and spatial (53 responses). Multimedia, video, and sound are less common, probably because they reflect the products surveyed and because of the special plug-ins, hardware, and memory required to open, view, and listen to products that contain these data types. The *primary* data types contained in products surveyed are textual (57 percent), numerical (21 percent), bibliographic (10 percent), and graphical (5 percent; table 2b). These four types of data account for approximately 93 percent of the products surveyed.

Table 2a.
Number and percent of types of data, by the type of data contained

Type of data	Type of data contained	
	Number	Percent
Textual data (books, serials, reports)	188	77.7
Graphical data (photos, charts, graphs, tables, drawings)	142	58.7
Numerical data	141	58.3
Bibliographic data	82	33.9
Spatial data (maps, coordinate files)	53	21.9
Multimedia (sound, video, text, graphics)	14	5.8
Video	10	4.1
Sound	9	3.7
Other	16	6.6

NOTE: Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 2b.
Number and percent of types of data, by the primary type of data

Type of data	Primary type of data	
	Number	Percent
Textual data (books, serials, reports)	138	57.0
Numerical data	50	20.7
Bibliographic data	24	9.9
Graphical data (photos, charts, graphs, tables, drawings)	13	5.4
Multimedia (sound, video, text, graphics)	3	1.2
Spatial data (maps, coordinate files)	2	0.8
Sound	1	0.4
Video	1	0.4
Other	10	4.1

NOTE: Percents do not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Types of Mediums Used

Respondents were asked to identify *all* the types of mediums in which the product is available to the public as well as the *primary* type of medium used. The most common type of medium used among pre-electronic mediums is paper (177 responses), followed by microform (22; table 3a). The responses in the "other" category include Fax on Demand, audiotapes, and Braille. Among electronic mediums used, it is not surprising that the web is the most common (204 responses), followed by

CD-ROM (70 responses), floppy diskettes (42 responses), hard drive (30 responses), and magnetic tape (18 responses). These figures reflect the medium types the public is most likely to easily access, as well as the availability and growing interest in the web.

Table 3a also displays the frequency and percentage distribution of the *primary* types of mediums in which the product is publicly accessible. The web (42 percent) and paper (41 percent) are the *primary* types of mediums used, followed by CD-ROM (8 percent) as a distant third.

Standards for all mediums checked. For each type of medium checked, respondents identified one medium standard (see Appendix E glossary) among four types:

- Agency mandated,
- Common agency practice,
- Other, and
- None.

While most agencies have some type of standards for their pre-electronic and electronic mediums, they are primarily "common agency practice" rather than "agency mandated." For pre-electronic mediums, 33 percent of the products in paper are in an agency-mandated standard (table 3b). However, 52 percent of paper products are used as a common agency practice. Only 13 percent of the CD-ROM products are in an agency-mandated standard, as compared to 59 percent of CD-ROMs that are used as a common agency practice. Eighteen percent of web-based products were reported to be in an agency-mandated standard, while 70 percent of them are used as a common agency practice.

A considerable number of products in CD-ROM (21 percent) were reported as having *no* standards (table 3b). Compare these numbers to 9 percent (15 products) of products reported by respondents as having *no* standards for the use of paper, and 8 percent (16 products) reported as having *no* standards for the use of the web.

Table 3a.
Number and percent of mediums publicly available, by the type of medium used and primary medium used

Medium	Type of medium used[1]		Primary medium used[2]	
	Number	Percent	Number	Percent
Online mediums				
Web	204	84.3	102	42.1
Bulletin Board Systems	13	5.4	1	0.4
Gopher	10	4.1	0	0.0
Other	24	9.9	3	1.2
Pre-electronic mediums				
Paper	177	73.1	99	40.9
Microform	22	9.1	0	0.0
Other	12	5.0	2	0.8
Optical mediums				
CD-ROM	70	28.9	20	8.3
WORM (write once, read many disk)	1	0.4	1	0.4
DVD (digital video disk)	1	0.4	0	0.0
Other	1	0.4	1	0.4
Electronic mediums				
Floppy diskette	42	17.4	1	0.4
Hard drive	30	12.4	4	1.7
Magnetic tape	18	7.4	1	0.4
Other	10	4.1	1	0.4

[1] Column percents do not add to 100 because respondents could choose more than one item.

[2] Percents do not add to 100 due to nonresponse.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 3b.
Number and percent of mediums publicly available, by the standard for each medium used

Medium	Standard for each medium used							
	Agency mandated		Common agency practice		Other		None	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Online mediums								
Web	36	17.6	143	70.1	9	4.4	16	7.8
Bulletin Board Systems	1	7.7	10	76.9	0	0.0	1	7.7
Gopher	0	0.0	8	80.0	0	0.0	2	20.0
Other	4	16.7	14	58.3	0	0.0	6	25.0
Pre-electronic mediums								
Paper	58	33.0	92	52.3	9	5.1	15	8.5
Microform	6	26.1	14	60.9	3	13.0	0	0.0
Other	2	16.7	6	50.0	2	16.7	2	16.7
Optical mediums								
CD-ROM	9	12.9	41	58.6	4	5.7	15	21.4
WORM (write once, read many disk)	0	0.0	0	0.0	0	0.0	1	100.0
DVD (digital video disk)	0	0.0	0	0.0	0	0.0	1	100.0
Other	0	0.0	1	100.0	0	0.0	0	0.0
Electronic mediums								
Magnetic tape	3	16.7	12	66.7	1	5.6	2	11.1
Floppy diskette	3	7.1	29	69.0	5	11.9	5	11.9
Hard drive	2	6.7	24	80.0	0	0.0	4	13.3
Other	1	10.0	5	50.0	4	40.0	0	0.0

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Format Types Used

Databases. Responses to all formats used are shown in table 4a. Wide Area Information Server (WAIS) is the most common type of database identified (22 responses), followed by Oracle (17 responses), and dBase (9 responses). In some cases, WAIS is reported because the products surveyed are made available through GPO Access. The 44 responses in the "other" category reveal few multiple responses except for Microsoft Access that received 5 "write-in" responses in this category.

WAIS (24 percent) and Oracle (14 percent) are the *primary* types of databases used (table 4a). Ninety-one percent of the respondents who checked WAIS as one of the databases used also indicated that the use of WAIS is a common agency practice, while only one respondent indicated that WAIS is agency mandated (table 4b). However, only 44 percent of the respondents identified the use of Oracle as a common agency practice, but 39 percent of respondents indicated their use of Oracle is agency mandated.

Spreadsheets. For spreadsheet formats used, Excel and Lotus 1-2-3 received 33 and 23 responses, respectively (table 4a). When respondents were asked to choose one of the databases as the *primary* type used, 59 percent chose Excel, while only 33 percent chose Lotus 1-2-3. Close to 71 percent of the respondents also identified the use of Excel as a common agency practice as compared to 38 percent who indicated the use of Lotus 1-2-3 as a common agency practice (table 4b).

Tagged mark-up. Hypertext Markup Language (HTML) is both the most commonly used tagged markup language (157 responses) *and* the *primary* type of tagged markup language used (89 percent; table 4a). The Government agencies surveyed seldom use Extensive Markup Language (XML) (2 responses), and Standard Generalized Markup Language (SGML) (14 responses). This is noteworthy since SGML is one of the few formats that NARA accepts for electronic records.

Even given the fact that HTML is the primary type of tagged markup format used, 72 percent of the respondents reported that HTML is used as a common agency practice, while only 13 percent reported that its use is mandated by the agency (table 4b). Sixty percent of the respondents who use SGML for their online products reported it as a common agency practice, while only 13 percent reported that its use is mandated by the agency.

Image formats. Portable Document Format (PDF) is the most common image format (132 responses) *and* the *primary* type of format used (49 percent) by the agencies surveyed in this study (table 4a). The use of PDF is followed by GIF (99 responses), JPEG (77 responses), then TIFF (36 responses) as image formats used. Perhaps PDF is the most commonly used format by the agencies surveyed because the Federal Government disseminates a wide range and large number of forms and documents that must be printed in the exact format in which they are created.

Almost 64 percent of respondents reported that PDF is a common agency practice, while 16 percent reported it is mandated by the agency (table 4b). While a higher percentage of respondents reported using GIF (69 percent) and JPEG (71 percent) as a common agency practice, PDF is the most used agency-mandated image format (16 percent).

Audio formats. The number of responses reported in this category reflects the small numbers of products surveyed that contain sound (see table 2a). WAV (12 responses) is the most commonly used sound format followed by AU (5 responses), and AIFF with 1 response (table 4a). WAV is also the *primary* type of audio format used (73 percent).

Table 4a.
Frequency and percent of formats used, by the type of format used and primary type of format used

Format	Type of format used[1]		Primary type of format used[2]	
	Number	Percent	Number	Percent
Database				
WAIS	22	9.1	22	24.4
Oracle	17	7.0	13	14.4
dBase	9	3.7	8	8.9
Sybase	4	1.7	1	1.1
MARC	2	0.8	3	3.3
Other	44	18.2	40	44.4
Spreadsheet				
Excel	33	13.6	30	58.8
Lotus 1-2-3	23	9.5	17	33.3
Other	3	1.2	2	3.9
Tagged markup				
HTML	157	64.9	152	88.9
SGML	14	5.8	8	4.7
XML	2	0.8	0	0.0
Other	12	5.0	10	5.8
Image				
PDF	132	54.5	84	48.8
GIF	99	41.1	43	25.0
JPEG	77	31.8	16	9.3
TIFF	36	14.9	4	2.3
Other	19	7.9	13	7.6

Table 4a.
Frequency and percent of formats used, by the type of format used and primary type of format used (continued)

Format	Type of format used[1]		Primary type of format used[2]	
	Number	Percent	Number	Percent
Audio				
WAV	12	5.0	11	73.3
AU	5	2.1	0	0.0
AIFF	1	0.4	0	0.0
Other	4	1.7	3	20.0
Video				
MPEG	9	3.7	4	26.7
MOV	7	2.9	5	33.3
AVI	4	1.7	4	26.7
Other	1	0.4	1	6.7
Text				
ASCII	122	50.4	106	80.9
ANSI	11	4.5	0	0.0
RTF	9	3.7	5	3.8
Other	17	7.0	17	13.0
Word processing				
Word Perfect	75	31.0	62	63.9
Microsoft Word	55	22.7	21	21.6
Other	23	9.5	10	10.3
Other	5	2.1	3	60.0

[1] Column percents do not add to 100 because respondents could choose more than one item

[2] Percents do not add to 100 due to nonresponse

SOURCE National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Sixty-two percent or eight of the agency respondents who indicated using WAV reported it as a common agency practice; only two respondents (15 percent) reported that WAV is an agency-mandated standard (table 4b). Perhaps it is not surprising that WAV is the most commonly used audio format; since it was built into Windows95, it has become the de facto standard for sound on PCs. AIFF is the standard audio format for Macintosh computers (PC Webopaedia; see www.pcwebopaedia.com).

Table 4b.
Number and percent of formats used, by the standard for each format used

Format	Standard for each format used							
	Agency mandated		Common agency practice		Other		None	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Database								
Oracle	7	38.9	8	44.4	1	5.6	1	5.6
WAIS	1	4.3	21	91.3	0	0.0	0	0.0
MARC	1	33.3	1	33.3	0	0.0	0	0.0
Sybase	0	0.0	4	80.0	0	0.0	0	0.0
dBase	0	0.0	8	80.0	0	0.0	0	0.0
Other	2	4.4	21	46.7	12	26.7	9	20.0
Spreadsheet								
Lotus 1-2-3	6	25.0	9	37.5	3	12.5	5	20.8
Excel	4	11.8	24	70.6	0	0.0	4	11.8
Other	0	0.0	0	0.0	0	0.0	2	50.0
Tagged markup								
HTML	21	13.3	114	72.2	6	3.8	15	9.5
SGML	2	13.3	9	60.0	2	13.3	1	6.7
XML	0	0.0	1	33.3	0	0.0	1	33.3
Other	0	0.0	7	53.8	1	7.7	4	30.8
Image								
PDF	21	15.9	84	63.6	15	11.4	11	8.3
GIF	11	11.0	69	69.0	11	11.0	8	8.0
JPEG	7	9.1	55	71.4	10	13.0	4	5.2
TIFF	2	5.4	22	59.5	10	27.0	2	5.4
Other	3	13.6	6	27.3	10	45.5	2	9.1

Video formats. As with the audio formats used, the even smaller number of responses reported in this category also reflect the small numbers of products surveyed that contain moving images. Table 4a shows that Moving Picture Experts Group (MPEG) (9 responses) is the most commonly used format, followed by MOV (7 responses) and Audio Video Interleave (AVI) (4 responses). MPEG may be more commonly used since it generally produces better quality video than AVI (PC Webopaedia). Of all the video formats used, however, the *primary* type of video format used is MOV (33 percent), followed by MPEG and AVI (27 percent each).

Table 4b.
Number and percent of formats used, by the standard for each format used (continued)

Format	Standard for each format used							
	Agency mandated		Common agency practice		Other		None	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Audio								
WAV	2	15.4	8	61.5	0	0.0	2	15.4
AU	4	66.7	0	0.0	0	0.0	1	16.7
AIFF	1	50.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	1	20.0	2	40.0	1	20.0
Video								
MOV	0	0.0	5	62.5	0	0.0	2	25.0
MPEG	1	10.0	5	50.0	1	10.0	2	20.0
AVI	1	20.0	3	60.0	0	0.0	0	0.0
Other	0	0.0	0	0.0	1	50.0	0	0.0
Text								
ASCII	14	11.4	87	70.7	6	4.9	14	11.4
RTF	4	40.0	4	40.0	1	10.0	0	0.0
ANSI	1	8.3	10	83.3	0	0.0	0	0.0
Other	3	16.7	11	61.1	2	11.1	1	5.6
Word processing								
Word Perfect	19	25.3	45	60.0	1	1.3	8	10.7
Microsoft Word	8	14.3	33	58.9	12	21.4	2	3.6
Other	1	4.2	6	25.0	12	50.0	3	12.5
Other	2	40.0	1	20.0	1	20.0	0	0.0

NOTE: Percents do not add to 100 due to nonresponse.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Of the respondents who reported using MPEG, 50 percent indicated its use is a common agency practice, while only 1 respondent (10 percent) reported that its use is agency mandated. Sixty-three percent of the respondents reported that MOV is used as a common agency practice, and none indicated that its use is agency mandated (table 4b).

Text formats. ASCII is by far the most commonly used text format (122 responses) *and* the *primary* type of text format used (81 percent; table 4a). The second most commonly used text format is ANSI (11 responses) followed by Rich Text Format (RTF) (9 responses). Seventy-one percent (87) of the respondents reported that their use of ASCII is a common agency practice, as compared to 11 percent (14) who reported its use is agency mandated (table 4b).

Word processing formats. Between the two most popular word-processing software packages, Microsoft Word and WordPerfect, the latter (75 responses) is more commonly used than Microsoft Word (55 responses; table 4a). These responses are also consistent with the *primary* type of word processing used. Sixty-four percent of respondents reported WordPerfect as the *primary* type of format used while only 22 percent of respondents reported Microsoft Word as the *primary* type of format used. PageMaker received the largest number of responses (5) in the "other" category. Nineteen respondents (25 percent) reported that WordPerfect is an agency-mandated format standard, while only 8 respondents (14 percent) indicated that Microsoft Word is an agency-mandated format standard (table 4b).

Summary of format types used. Each of the 242 respondents from the 24 agencies surveyed was asked to identify the primary type of format used of *each* of the categories. The *primary* types of formats used in each category are WAIS, Excel, HTML, PDF, ASCII, and to a lesser degree, WAV and MOV.

User Interfaces

Online approaches. Question 9 on the survey refers to online approaches used. Eighty-five percent of the respondents reported that their product is in an online medium (table 5). These respondents were then asked to respond to a set of questions on user interfaces supported and web design approaches.

Table 5.
Number and percent of products reported as being in an online medium

Product characteristic	Number	Percent
Is this product in an online medium?		
Yes	206	85.1
No	33	13.6

NOTE: N = 242; 3 cases were not ascertained.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

User interface supported. Table 6a shows that Netscape Navigator (195 responses) is a more commonly supported browser than Internet Explorer (170 responses). However, close to 70 percent of agency respondents indicated that both of these browsers are almost equally supported as a common agency practice rather than an agency-mandated standard (table 6b).

Table 6a.
Number and percent of online approaches used, by type of online tool used

Online approach	Type of online tool used	
	Number	Percent
User interfaces supported		
Netscape	195	93.3
Internet Explorer	170	81.7
FTP	40	19.1
Telnet	27	12.9
Nongraphical/dial-up shell	15	7.2
Other	22	10.5
Web design approaches		
Basic HTML only	150	71.8
Tables	111	53.1
CGI Scripts	66	31.6
Frames	53	25.4
Use of Javascript	43	20.6
Use of Java Applets	23	11.0
XML	11	5.3
Other	25	12.0
Bulletin board systems (BBS)		
Graphical interface/browser	7	3.4

NOTE: Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

In addition, respondents reported that file transfer protocol (FTP), Telnet, and nongraphical/dial-up shells are also supported by their agencies (table 6a). Designs that support LYNX, a text-based browser, account for 12 of the 22 responses in the "other" category. The number of responses for the category nongraphical/dial-up shell are low (15 responses), especially given the need for agencies to comply with the American with Disabilities Act by making their sites more accessible to the visually and hearing impaired.

Like the browsers, the other user interfaces supported are primarily supported as a common agency practice rather than an agency-mandated standard. Almost 83 percent of the 40 respondents who reported their agency supports FTP also reported it is a common agency practice, while 79 percent of the 27 respondents who reported supporting Telnet also indicated it as a common agency practice (table 6b). No respondents reported that Telnet is an agency-mandated standard; however, 8 percent reported that FTP is an agency-mandated standard for their surveyed products. Seventy-five percent of the respondents reported the support of a nongraphical/dial-up shell as a common agency practice while only 13 percent indicated that it is agency mandated.

Web design approaches. Various web design approaches used, in descending order, are HTML (150 responses), tables (111 responses), CGI Scripts (66 responses), frames (53 responses), Javascript (43 responses), Java Applets (23 responses), and XML (11 responses; table 6a). ColdFusion was reported in three of the responses in the "other" category.

The use of these web design approaches is overwhelmingly a common agency practice rather than an agency-mandated standard (table 6b). Basic HTML—tags that consistently display content in a similar fashion by the most popular browsers—is the only approach to which almost one-fifth (18 percent) of the respondents reported that its use is agency mandated. Less than 10 percent of the respondents using each of the other approaches indicated that they are agency-mandated standards. Since the use of frames, Javascript, Java Applets, and XML may not be supported or enabled for many users' browsers, the agencies surveyed appear to be adopting them slowly, if at all.

Table 6b.
Number and percent of online approaches used, by the standard for each online tool used

Online approach	Standard for each online tool used							
	Agency mandated		Common agency practice		Other		None	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
User interfaces supported								
Netscape	36	18.3	139	70.6	4	2.0	17	8.6
Internet Explorer	25	14.5	120	69.4	4	2.3	22	12.7
FTP	3	7.5	33	82.5	0	0.0	3	7.5
Nongraphical/dial-up shell	2	12.5	12	75.0	0	0.0	1	6.3
Telnet	0	0.0	22	78.6	1	3.6	4	14.3
Other	1	4.8	18	85.7	0	0.0	1	4.8
Web design approaches								
Basic HTML only	27	17.9	105	69.5	1	0.7	16	10.6
Tables	10	8.9	88	78.6	3	2.7	9	8.0
CGI Scripts	4	6.0	55	82.1	0	0.0	7	10.4
Use of Javascript	3	6.8	30	68.2	6	13.6	4	9.1
Frames	2	3.7	44	81.5	3	5.6	4	7.4
Use of Java Applets	2	8.3	15	62.5	3	12.5	3	12.5
XML	0	0.0	10	83.3	1	8.3	0	0.0
Other	3	11.1	17	63.0	2	7.4	4	14.8
Bulletin board systems (BBS)								
Graphical interface/browser	1	12.5	5	62.5	0	0.0	1	12.5

NOTE: Percents do not add to 100 due to nonresponse.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Searchability of Product

Searchability of an electronic product is important for users because it allows them to effectively access the information they need. Most electronic products are searchable either by full-text with no fielding (74 responses) and/or by full-text and field (99 responses; table 7). The "view only" category contains a higher number of responses than expected (79 responses).

The "other" category contains the following common responses:

- Inapplicable because product is in a paper medium (most common response);
- In PDF, which is not searchable; and
- Product is indexed by field only.

Table 7.
Number and percent of responses regarding searchability of the product

Product characteristic	Number	Percent
Indexed by full-text and field	99	40.9
Available as "view only" — non-searchable	79	32.6
Included as part of a full-text searchable database with no fielding	74	30.6
Other	32	13.2

NOTE: Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Product "Host"

Most of the products surveyed (199 responses) were hosted by the agency that created them, although other agencies or institutions might also host the products since respondents were asked to "check all that apply" for this question (table 8). There are fewer responses for products hosted by another agency (42 responses), a contractor (17 responses), and an educational institution (9 responses).

Table 8.
Number and percent of responses regarding where the product is hosted

Product host	Number	Percent
Your agency	199	82.2
Another agency	42	17.4
Contractor	17	7.0
Educational institution	9	3.7
Other	15	6.2

NOTE: Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Retrievability of Product

In order to ensure broad access to the product, the public should be able to download and save electronic Government information products without restrictions (GPO, 1996, p. 7). Responses to Question 11 indicate that for the most part, products surveyed for this study can be downloaded and saved without restrictions (173 responses; table 9). Responses in the second category indicate that some products cannot be downloaded or saved (20 responses). A small number of products (14) cannot be downloaded or saved because their use requires proprietary software that is not freely distributed (table 9). Common write-in responses in the "other" category include:

- Can be downloaded and saved, but subject to restrictions.
- Can be printed from browser, but not downloaded.
- Product available only in paper.

The United States Advisory Council on the National Information Infrastructure, in its publication "A Nation of Opportunity," identifies as one of the basic principles of Government information and services that "the Federal Government should not charge for making its information available…nor charge for access to that information" (GPO, 1996, p. 28).

Table 9.
Number and percent of responses concerning the retrievability status of the product

Product and software characteristic	Number	Percent
Can be downloaded, saved, and is not subject to any restrictions on use or re-use by the end user	173	71.5
Cannot be downloaded, saved, and/or re-used because it is part of a database and does not exist as a distinct product	20	8.3
Cannot be downloaded, saved, and/or re-used because it requires proprietary software that is not freely distributable	14	5.8
Other	41	16.9

NOTE: Percents do not add to 100 because respondents could choose more than one item.
SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Section C Responses (Planned Product Profile)

Section C contains a series of questions related to the *future* product profile. Respondents were asked questions about changes in the types of data, mediums, and formats used and reported on in Section B of the questionnaire. Respondents also were asked to identify the time span in which the changes would occur and to describe the planned changes.

Types of Data

The first question in this section of the questionnaire asked respondents about plans to discontinue publication of the product. Only 5 percent (12) of the respondents planned to discontinue the product (table 10). Several of the most commonly listed responses provided for discontinuation of a product was that the product was a one-time "prototype" or that the paper version of the product would be discontinued.

Table 10.
Number and percent of respondents reporting plans to discontinue publication of the product

Product characteristic	Number	Percent
Are there any plans to discontinue publication of this product?		
Yes	12	5.0
No	230	95.0

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 11 shows responses to question 13 about the *kinds of data* (i.e., bibliographic, textual, graphical) the product will contain in the future. The majority of respondents (76 percent) reported that the agency plans *no* changes to the product. Twenty-one percent reported that the agency would *add one or more new types* of data. A total of 3 percent reported either the discontinuation of one type of data (0.4 percent), or a complete change to *new* data types (2.6 percent). Several respondents reported that the changes in data types would include adding audio or video and multimedia.

Table 11.
Number and percent of responses regarding the planned changes to the type of data contained in the product

Product characteristic	Number	Percent
What kind of data will this product contain?		
Retain existing type(s) of data, no changes planned	178	76.4
Retain existing type(s) of data and add items of one or more new types of data	48	20.6
Discontinue one or more types	1	0.4
Change to new type(s) of data	6	2.6

NOTE: N = 242, 9 cases are missing.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Most agency respondents reported that these changes in data types would mainly occur in the short term (40 responses) and, to a lesser degree, in the medium term (24 responses; table 12). Most respondents skipped the question about long-term plans for changing data types. Respondents noted in the "please specify" categories in questions 13c and 13e indicate that respondents' plans for product changes have not yet been solidified.

Table 12.
Number and percent of responses regarding the timeframe for planned changes to the type of data contained in the product

Product characteristic	Number	Percent
Change(s) will occur in the:		
Short term: within 1 year or less	40	72.7
Medium term: within 2 to 5 years	24	43.6

NOTE: Percents do not add to 100 because respondents could choose more than one item. Numbers reflect respondents who indicated changes.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Types of Mediums

Responses to changes in types of *mediums* parallel those for changes in data types. Seventy-six percent of the respondents reported *no* plans to change mediums (table 13). Eighteen percent of respondents reported that they are planning to *add* one or more mediums, 2 percent indicated they will *discontinue* one or more mediums, and 3 percent reported they will *change to a new type* of medium.

Table 13.
Number and percent of responses regarding the planned changes to the mediums used for the future

Product characteristic	Number	Percent
What kind of medium(s) will this product use? If product is delivered in more than one medium, respond for all mediums.		
Retain existing medium(s), no changes planned	178	76.1
Retain existing medium(s) and add items of one or more new types of m	42	17.9
Discontinue one or more types	4	1.7
Change to new type(s) of medium	8	3.4
No agency mandated medium applies	0	0.0

NOTE: N = 242; 8 cases are missing, 2 cases were not ascertained.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

The two most frequently mentioned additions to medium types are to provide web access to the product, and to make the product available on CD-ROM. Most of the respondents (35) who reported changes in medium types indicated that the changes will occur in the medium term; 21 respondents indicated that these changes will occur in the short term (table 14). Again, most respondents skipped the question about long-term plans for changing product mediums. The few respondents who provided descriptions of their long-term plans mentioned that they will produce the product in multiple mediums (paper and web), or that paper items will be migrated to the web. Other respondents indicated that their long-term plans are undetermined or undefined.

Table 14.
Number and percent of responses regarding the timeframe for planned changes to product medium used

Product characteristic	Number	Percent
Change(s) will occur in the:		
Short term: within 1 year or less	21	37.5
Medium term: within 2 to 5 years	35	62.5

NOTE: Numbers reflect respondents who indicated changes.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Types of Formats

One might expect to see more dramatic changes in types of formats since the range of formats is varied and broad (i.e., database, spreadsheet, tagged markup, image, etc.). The pattern of responses to question 15 mirrors the responses to changes in types of data and mediums, except for the change to *new* types. Seventy-two percent of the respondents reported *no* changes in format types. Eighteen percent indicated that they are planning to *add* one or more formats, while 9 percent reported they will change to *new* format types (table 15). This change to new *format* types is the largest percentage change in this category as compared to changes to new types of *data* (3 percent; table 11) and new types of *mediums* (also 3 percent; table 13). Respondents who provided specifics about the changes to new format types indicated these new types would be PDF and XML.

Table 15.
Number and percent of responses regarding the planned changes to the formats the product will contain

Product characteristic	Number	Percent
What kind of format(s) will this product contain?		
Same as existing format(s), no changes planned	167	71.7
Retain existing format(s) and add one or more new format types	42	18.0
Change to new format types	21	9.0
Discontinue one or more types	1	0.4
No agency-mandated format applies	1	0.4

NOTE: N = 242, 9 cases are missing, 1 case was not ascertained.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

The majority of respondents who reported changes indicated that they will occur in the short term (36 responses), and/or the medium term (32 responses; table 16). The majority of respondents did not answer the question about long-term plans for changing formats.

Table 16.
Number and percent of responses regarding the timeframe for planned changes to the product format used

Product characteristic	Number	Percent
Change(s) will occur in the:		
Short term: within 1 year or less	36	55.4
Medium term: within 2 to 5 years	32	49.2

NOTE: Total frequency reflects respondents reporting changes only. Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Section D Responses (Other Information)

Section D of the questionnaire contains a variety of questions in an effort to answer some of the critical issues of public access to electronic information products:

- Metadata,
- Permanent public access (i.e., provided by what agency and how),
- Permanent retention,
- Ensuring authenticity,
- Updating/upgrading plans,
- User fees,
- Licensing, and
- Public domain.

Metadata

Metadata, data about data, are important for public access. *Metadata* refers to describing the content of a document or record allowing users to find Government information more effectively. Examples of metadata include Government Information Locator Service (GILS) and machine-readable cataloging (MARC) records. To that end, one of the requirements of the Government Printing Office Electronic Information Access Enhancement Act of 1993 (Public Law 103-40) was that the Superintendent of Documents maintain an electronic directory of Federal electronic information (44 U.S.C., Section 4101).

Only 27 percent of agency respondents reported that their products have a metadata record, while 69 percent reported no metadata record exists for their products (table 17). In the followup question, most respondents identified their metadata records as either MARC or GILS. Another 5 percent indicated they *do not know* if a metadata record exists.

Table 17.
Number and percent of respondents reporting a metadata record for the product

Product characteristic	Number	Percent
Is there a metadata record for this product (e.g., GILS, MARC)?		
Yes	65	26.9
No	166	68.6
Don't know	11	4.5

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Permanent Public Access

In an electronic age, permanent public access to Government information, a critical concept in information resources management, presents far-reaching challenges to the Federal Depository Library Program, Congress, Federal agencies, and ultimately the American public. GPO indicates that permanent public access "means that electronic Government information products within the scope of the FDLP remain available for *continuous*, no-fee public access through the program" (GPO, 1998, p. 19). GPO recognizes and acknowledges its responsibility to provide ongoing public access to the electronic Government information available through the FDLP. However, in a decentralized networked environment, agencies are asked to share the responsibility for building, storing, disseminating, and preserving a broad range of electronic information products in order to ensure continued public access.

Agency respondents reported that permanent public access is primarily provided by their agency (177 responses), by another agency (51 responses), and/or by some other entity (20 responses; table 18). Respondents reported that permanent public access is *not* provided for 28 products (table 18). However, on closer examination, the responses to the "please specify" questions indicate that either respondents may have misunderstood the concept of *permanent* public access (as opposed to *current* access), or they assumed other entities have this responsibility. Some of the common responses to "other" agencies include the Government Printing Office, National Archives and Records Administration (NARA), and contractors and vendors. These responses illustrate respondents' lack of understanding about the difference between permanent public access to electronic information products through their own agencies or through partnerships with GPO, and permanent retention of official Government records through NARA. Furthermore, only 4 of the 28 products for which no permanent public access currently is provided have future plans for providing permanent public access (table 19).

Table 18.
Number and percent of responses regarding the entity providing permanent access to the product

Product characteristic	Number	Percent
Permanent public access to this product is currently provided by:		
Your agency	177	73.1
Another agency	51	21.1
Other	20	8.3
No permanent public access provided	28	58.3

NOTE: Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Table 19.
Number and percent of responses regarding products for which access will be provided in the future

Product characteristic	Number	Percent
Are there plans to provide permanent public access in the future for this product?		
Yes	4	12.9
No	24	80.6

NOTE: Only those respondents (N=28) who indicated there is currently no permanent public access provided for this product were asked to complete this question.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Permanent Retention

The mission of the National Archives and Records Administration is distinct from that of GPO. NARA's mission is to preserve and provide public access to *permanently valuable* records of the Federal Government. Federal agencies are responsible for transferring products to NARA that are scheduled as permanent records (i.e., official records of the Federal Government as defined by the Federal Records Act). Under 36 CFR 1228.188, mediums approved for transfer include open reel magnetic tape, magnetic tape cartridge, and CD-ROM. Agencies currently may *not* transfer to NARA electronic records that are in a format dependent on specific hardware and software. However, SGML tags are permitted on electronic textual documents as are records written in ASCII or Extended Binary Coded Decimal Interchange Code (EBCDIC) with all control characters and other non-data characters removed (Lewis Bellardo, Deputy Archivist of the U.S. in a written response to agency questions, October 14, 1998).

The responses to the questions on permanent retention may reflect the current status of transferring *permanent* electronic records to NARA (see questions findings). Only 34 percent of agency respondents reported that their products are scheduled for permanent retention by NARA (table 20). Sixty-four percent reported their products are *not* scheduled for retention, while another 3 percent reported they *do not know* if the product is scheduled for retention. However, it should be pointed out that at the time of the survey, the schedule that would have covered electronic records of permanent value was unenforceable under a court case declaring it null and void; therefore, these figures may be unreliable.

Table 20.
Number and percent of responses regarding permanent retention of the product

Product characteristic	Number	Percent
Is this product scheduled for permanent retention by the National Archives and Records Administration?		
Yes	82	33.9
No	154	63.6
Don't know	6	2.5

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Ensuring Authenticity

Although 64 percent of respondents reported that their agency ensures authenticity for the products surveyed (table 21), responses to the open-ended question about how the agency attests to authenticity indicate that respondents may not fully understand the concept.

Authentication refers to the process agencies use to ensure the public that the product is an official legitimate product created and produced by the Federal Government agency and no other source (see glossary, p. E-17). Ensuring authentication includes technical as well as policy considerations. Some technical examples of authentication include digital signature technology, special watermarks, disclaimers, or statements on the products. Respondents provided answers that address how the agency ensures that information or data in the product are valid or reliable— an important process, but not the same concept as authenticity. Common responses include the following:

- Program office verifies data.
- Review CD-ROM contents before public release.
- Regulations and source/reliability statement regarding data sources.
- Review and approval within agency.
- Source of content is the same as the hardcopy version.
- Test reliability of data every 5 years, or more often.
- Publications are subjected to review by subject matter expert and peer review.

Table 21.
Number and percent of respondents who reported the agency ensures authenticity for the product

Product characteristic	Frequency	Percent
Does the agency ensure authenticity (official status determination) for this product?		
Yes	154	63.6
No	86	35.5
Don't know	2	0.8

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Updating/Refreshing Plans

Twenty percent of respondents reported that their products are updated annually, followed by daily (16 percent), monthly (12 percent), and weekly (5 percent; table 22). However, the majority (47 percent) of respondents checked the "other" response category. The write-in responses covered a broad range of time periods in which products are updated. Below is a sampling of multiple responses:

- Quarterly,
- As needed,
- Irregularly,

- Not updated,
- Semi-annually,
- Every 2 years,
- Periodically, and
- Twice a month with old version staying on line.

Table 22.
Number and percent of responses regarding how frequently the product is updated or refreshed

Product characteristic	Number	Percent
How frequently is this product updated or refreshed?		
Annually	48	19.8
Daily	39	16.1
Monthly	30	12.4
Weekly	12	5.0
Other	113	46.7

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Changing Supporting Technology

The majority of the respondents (71 percent) reported that there are no plans to change the product's supporting technology (table 23). Twenty-eight percent of respondents reported plans to change the product's supporting technology.

Table 23.
Number and percent of responses regarding the plans for supporting technology of the product

Product characteristic	Number	Percent
Are there plans for changing the product's supporting technology?		
Yes	68	28.1
No	171	70.7
Don't know	2	0.8

NOTE: N = 242; 1 case not ascertained

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

User Fees

Public access to no-fee Government information products is one of the core principles upon which the FDLP is based. However, users might be charged a fee if they order certain types of electronic Government information products directly from GPO or the agency that created the product. Nine percent of respondents reported that *all* users are charged fees, while 20 percent reported *some* users are charged fees. The majority (72 percent) of agency respondents reported that there are no fees charged to access or use the product surveyed (table 24). The followup question asks about specific fee amounts and the reasons for the charge. The responses to this question vary greatly. A few common responses include the following:

- No charge for web access.
- Single paper copy free; charge for additional copies.
- No subscription fee to libraries and some constituencies.
- Files can be downloaded from the Internet for free. There is a charge for published books.
- Fees are for paper products only.

Table 24.
Number and percent of respondents reporting that user fees are charged for the product

Product characteristic	Number	Percent
Is a user fee charged for this product?		
Yes, for some users	48	19.8
Yes, for all users	21	8.7
No	173	71.5

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Licensing

Many Government agencies purchase licenses from vendors for search and retrieval software to be used with the product to make the data or information more accessible to users. Agencies negotiate various agreements with vendors about who can use the software free of charge. The majority of respondents (69 percent) reported that they do *not* license commercial search and retrieval software (table 25). For the remaining 31 percent of respondents who have licensed commercial software, the license covers use by all the key constituencies including agency personnel (73 responses), public users (69 responses), agency's primary target constituencies (65 responses), Federal depository libraries (59 responses), and/or all libraries (59 responses; table 26).

Table 25.
Number and percent of respondents reporting about the use of licensed commercial search and retrieval software for the product

Product characteristic	Number	Percent
Has the agency licensed commercial search and retrieval software for use with this product?		
Yes	76	31.4
No	166	68.6

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 26.
Number and percent of responses regarding coverage by the agency software license

Product characteristic	Number	Percent
Does the agency's license cover use by:		
Agency personnel	73	96.1
Agency's primary target constituencies	65	85.5
Federal depository libraries	59	77.6
All libraries	59	77.6
Public users	69	90.8
Other	10	13.2

NOTE: Percents do not add to 100 because respondents could choose more than one item.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Public Domain

Public domain, a critical component of public access, means that the information, product, or publication is not copyrighted and therefore can be reproduced by anyone without obtaining copyright permission. One of the goals of an electronic FDLP is to provide public access to *any* Government information product free of copyright or copyright-like restrictions (GPO, 1996, p. 2). The majority of respondents, 86 percent, indicated that *all* parts of their surveyed products are in the public domain (table 27). Another 10 percent indicated that *part* of the product is in the public domain, while 5 percent reported that the product is *not* in the public domain. The followup question that requests an explanation of the second response (i.e., part of product is in the public domain) uncovered these typical responses:

- Copyrighted tables are not in the public domain.
- There are some copyright-protected logos and trademarks.
- Includes copyrighted material that would require approval for reproduction.

Respondents offered a wide variety of explanations for products that are not in the public domain:

- Retrieval software is proprietary and use is licensed.
- Commercial vendors lease the database for distribution.
- Songs and performances are protected by copyright.
- Books are available only to eligible blind patrons of our program, by law.

Table 27.
Number and percent of respondents reporting the public domain status of the product

Product characteristic	Number	Percent
Is this product in the public domain?		
Yes, for the entire product	206	85.5
Yes, for part of the product	24	10.0
No	11	4.6

NOTE: N = 242; 1 case missing. Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Section E Responses

The final section E of the questionnaire contains one open-ended "comments" question. These responses are too broad and disparate to provide a detailed itemization. Most of the comments are explanations of issues covered in the survey. However, below are a few comments that cover issues not directly addressed in the survey.

- Our mission, mandated by the Americans with Disabilities Act (ADA), is to satisfy all browser requirements (e.g., ASCII browsers like LYNX through the latest versions of Netscape and Internet Explorer).

- We produce printed documents and link to electronic documents maintained on the GPO's server.
- The product is not published in any electronic form. It is a collection of individual products that are individually published.
- I am very new to this area (2 weeks) and received significant contractor assistance in completing this form.
- In addition to four other web sites, we will soon web-enable our database with some encrypted modules.
- The database is intended to be accessible to the largest audience possible via free or public domain software whenever possible.
- This information is available in PDF format on our website to ensure the integrity of the data. Coding in HTML (particularly tables) could lead to mistakes with such a large amount of numeric data.

No respondents commented on the survey questionnaire, the project in general, or the process of filling out the survey.

Study Questions

This section will use findings from two or more survey questions to provide additional information on some of the key issues explored in the study. The responses to these questions relate specifically to the products surveyed.

The following questions were chosen because they address one or more of the critical study areas: preferred medium and format standards, permanent public accessibility, permanent retention, user fees, commercial licensing of search and retrieval software, and authenticity.

Preferred Medium and Format Standards

Study Question 1: What combinations of preferred medium standards are currently used by the respondents?

The agencies surveyed are creating and using (in descending order):

- **Products both in paper format and on the web.**
- **Products both in CD-ROM and the web.**
- **Products both in paper and CD-ROM.**

Since most of the agencies surveyed create products in more than one medium, what combinations of preferred mediums are they using?

Of the respondents who indicated that paper was a medium used and the respondents who reported that CD-ROM was a medium used, only 19 percent reported that they are using *both* paper *and* CD-ROM products (table 28). Table 29 shows that of the respondents who reported that they use CD-ROM, and those who reported that they use the web as a medium, 21 percent use *both* CD-ROM *and* the web as mediums. However, of the respondents who reported using paper and the respondents who reported using the web as a medium, 64 percent use *both* paper *and* the web (table 30). Therefore, the respondents surveyed are creating and using products both in paper format and on the web much more often than they are creating and using products in CD-ROM and the web. An even smaller percentage of products is being created in paper and in CD-ROM. This confirms the earlier finding that paper and the web are the preferred mediums used by the agencies surveyed, but provides additional information about the combinations of mediums used.

Table 28.
Number and percent crosstabulations of products in both paper and CD-ROM formats

Paper	CD-ROM				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	45	18.6	132	54.5	177	73.1
No	25	10.3	40	16.5	65	26.8
Total	70	28.9	172	71.0	242	99.9

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 29.
Number and percent crosstabulations of products in both CD-ROM and web formats

CD-ROM	Web				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	51	21.1	19	7.9	70	29.0
No	153	63.2	19	7.9	172	71.1
Total	204	84.3	38	15.8	242	100.1

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 30.
Number and percent crosstabulations of products in both paper and web formats

Paper	Web				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	155	64.0	22	9.1	177	73.1
No	49	20.2	16	6.6	65	26.8
Total	204	84.2	38	15.7	242	99.9

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Study Question 2: What combinations of preferred format standards are used by the respondents?

The respondents are slightly more likely to use HTML in combination with PDF than they are to use HTML together with GIF. However, they are almost as likely to use HTML, GIF, and ASCII together as they are to use HTML, PDF, and ASCII together.

Of the respondents who reported using HTML as a tagged markup format, and those who reporting using PDF as an image format, 39 percent reported the use of both HTML and PDF (table 31). Of the respondents who checked HTML, and those who checked GIF as an image format, 36 percent checked that they used HTML in combination with GIF (table 32), slightly less than those who used HTML and PDF in combination. Since PDF is the preferred image format used by agencies (table 4), this is not an unexpected finding.

Table 31.
Number and percent crosstabulations of products in both HTML and PDF formats

HTML	PDF				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	94	38.8	63	26.0	157	64.8
No	38	15.7	46	19.0	84	34.7
Total	132	54.5	109	45.0	241	99.5

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 32.
Number and percent crosstabulations of products in both HTML and GIF formats

HTML	GIF				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	86	35.7	70	29.0	156	64.7
No	13	5.4	71	29.5	84	34.9
Total	99	41.1	141	58.5	240	99.6

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

However, when the formats are used in combinations of three, it appears that respondents are almost as likely to use HTML, GIF, and ASCII (21 percent) together as they are to use HTML, PDF, and ASCII (22 percent) together (tables 33 and 34).

Table 33.
Number and percent of products that use HTML with GIF and ASCII formats

Format	Number	Percent
Both GIF and ASCII	50	20.7
GIF only	36	14.9
ASCII only	27	11.2

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 34.
Number and percent of products that use HTML with PDF and ASCII formats

Format	Number	Percent
Both PDF and ASCII	53	21.9
PDF only	41	16.9
ASCII only	25	10.3

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Public Access to Products

Study Question 3: If a product is permanently accessible, is it also likely to be scheduled for retention with the National Archives and Records Administration (NARA)?

No, the majority of products surveyed that are permanently accessible are not likely to also be scheduled for permanent retention with NARA.

Permanent public accessibility and permanent record retention are two distinct concepts. GPO, through the FDLP, has a historical commitment to permanent accessibility of paper products, and now to electronic products. To that end, GPO requests that agencies provide information products in all mediums to GPO and work with GPO and Federal depository libraries to provide permanent public accessibility to electronic products. Agencies are responsible for transferring those products that are scheduled as permanent records to NARA. However, not all records that are scheduled for permanent retention by NARA are products within the scope of the FDLP. For such records, permanent public accessibility through the FDLP is not an issue.

Of the respondents who said yes, the product is permanently accessible, and the respondents who reported their product is scheduled for retention with NARA, only 25 percent reported that the product is both permanently accessible and also scheduled for retention with NARA (table 35). The majority of products that are publicly accessible are not likely to also be scheduled for retention with NARA. While there is not information from the survey data to identify reasons for this situation, some possibilities are that:

- the product is not a permanent or official record of the U.S. Government as defined by Federal Records legislation.
- the product is in a format that is accepted by GPO but in a format that NARA does not currently accept, and therefore could not be transferred to NARA.
- agencies are overlooking this important part of the information life cycle of electronic products.

Table 35.
Number and percent crosstabulations of products that are permanently public accessible and scheduled for retention with the National Archives and Records Administration (NARA)

Permanent public access	Product scheduled with NARA						Total	
	Yes		No		Don't know			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	61	25.2	113	46.7	3	1.2	177	73.1
No	21	8.7	41	16.9	3	1.2	65	26.8
Total	82	33.9	154	63.6	6	2.4	242	99.9

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998

Study Question 4: Is the licensing of search and retrieval software likely to be a barrier to unrestricted public access?

No, for the products surveyed, the licensing of commercial search and retrieval software by the agency does not appear to be a barrier to unrestricted (no fee) use.

Of the respondents who reported that they license commercial search and retrieval software for their products, and those who reported that *all* users are charged a fee for the products, only 2 percent who license commercial search and retrieval software *also* charge a fee for all users (table 36). A slightly larger number of respondents (4 percent) who use commercial search retrieval software for their products *also* charge a fee for some users. Twenty-five percent of respondents who license search and retrieval software for their products charge *no* user fees.

Table 36.
Number and percent crosstabulations for products with licensed commercial search and retrieval software and user fees charged for the product

Licensed commercial search and retrieval software	User fees charged for product						Total	
	Yes, for all users		No, for some users		No			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	5	2.1	10	4.1	61	25.2	76	31.4
No	16	6.6	38	15.7	112	46.3	166	68.6
Total	21	8.7	48	19.8	173	71.5	242	100.0

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Study Question 5: Are respondents who have purchased commercial search and retrieval software for their products also transferring the products to NARA?

No, based on the products surveyed here, respondents are not transferring permanent records to NARA for products in which they have purchased commercial search and retrieval software.

Of the respondents who reported issuing commercial search and retrieval software, and those who reported scheduling products for permanent retention with NARA, only about 10 percent who have purchased commercial software for products have also scheduled their products for permanent retention with NARA (table 37).

Table 37.
Number and percent crosstabulations of those products with licensed commercial search and retrieval software and the product is scheduled for permanent retention by the National Archives and Records Administration (NARA)

Licensed commercial search and retrieval software	Product scheduled for permanent retention by NARA						Total	
	Yes		No		Don't know			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	24	9.9	52	21.5	0	0.0	76	31.4
No	58	24.0	102	42.1	6	2.5	166	68.6
Total	82	33.9	154	63.3	6	2.5	242	100.0

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Other Issues: Authenticity and Metadata

Study Question 6: If an agency ensures authenticity, is it also likely to provide permanent public access to the product or do agencies rely on another agency to provide permanent public access?

Yes, based on the products surveyed, agency respondents who ensure authenticity for their products are also more likely to provide permanent access to them directly, rather than through another agency.

Of those respondents who reported they ensure authenticity and those who reported they provide direct permanent public access to their products, 47 percent both ensure authenticity for their products and provide direct permanent access to them (table 38). However, only close to 14 percent of the respondents who reported they ensure authenticity for their products also reported that another agency provides permanent public access to the product (table 39).

Table 38.
Number and percent crosstabulations of those products for which agencies ensure authenticity and permanent public access

Agency ensures authenticity	Permanent public access provided by the agency				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	113	46.7	41	16.9	154	63.6
No	63	26.0	23	9.5	86	35.5
Don't know	1	0.4	1	0.4	2	0.8
Total	177	73.1	65	26.8	242	99.9

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 39.
Number and percent crosstabulations of those products for which agencies ensure authenticity and another agency provides permanent public access

Agency ensures authenticity	Another agency provides permanent public access				Total	
	Yes		No			
	Number	Percent	Number	Percent	Number	Percent
Yes	33	13.6	121	50.0	154	63.6
No	17	7.0	69	28.5	86	35.5
Don't know	1	0.4	1	0.4	2	0.8
Total	51	21.0	191	78.9	242	99.9

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Study Question 7: Are online products hosted by the agency that created it more likely to have a metadata record than products hosted by another agency?

Yes, based on the products surveyed, those that are hosted by the agency that created it are more likely to have a metadata record than those hosted by another agency.

Tables 40 and 41 show that almost 20 percent of the products that are hosted by an agency also have a metadata record, while only 7 percent of the products that are hosted by another agency also have a metadata record.

Table 40.
Number and percent crosstabulations of products that are hosted by the agency and have a metadata record

Products hosted by the agency	Metadata record							
	Yes		No		Don't know		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	48	19.8	141	58.3	10	4.1	199	82.2
No	17	7.0	24	9.9	1	0.4	42	17.3
Total	65	26.8	165	68.2	11	4.5	241	99.5

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

Table 41.
Number and percent crosstabulations of products that are hosted by another agency and have a metadata record

Products hosted by another agency	Metadata record							
	Yes		No		Don't know		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Yes	17	7.0	25	10.3	0	0.0	42	17.3
No	48	19.8	140	57.9	11	4.5	199	82.2
Total	65	26.8	165	68.2	11	4.5	241	99.5

NOTE: Percents may not add to 100 because of rounding.

SOURCE: National Commission on Libraries and Information Science, Government Information Product Assessment Questionnaire, 1998.

4 Qualitative Findings

This section of the report highlights the qualitative findings from the three site visits with Federal depository libraries, five agency meetings, and six expert interviews. Appendices F through H include interview questions and detailed responses from the site visits to depository libraries (F), agency meetings (G), and expert interviews (H).

Site Visits to Federal Depository Libraries

The purpose of the site visits to the three depository libraries was to identify the key issues and concerns librarians have about providing public access to electronic Government information products through the Federal Depository Library Program. (See Appendix F for a complete list of questions posed to librarians.)

The site visits were held with one regional depository library and two selective depository libraries in the Washington, D.C., metropolitan area. It is important to note that the three libraries visited may not be representative of all depository libraries in terms of the geographical location and library user characteristics (e.g., education level, socioeconomic status, etc.). Therefore, readers are cautioned about generalizing these observations to all depository libraries. Highlights of the three librarians' responses are provided below. Appendix F contains a detailed description of the librarians' responses to the interview questions.

Highlights of Site Visits to Three Depository Libraries

User Needs and Concerns

- Librarians interviewed noted that the general public is still more comfortable using Government information products in paper and microfiche than they are using the Internet. Patrons (and librarians) are least comfortable using products on CD-ROM.
- Librarians expressed concern about the difficulty patrons experience in accessing Government-produced CD-ROMs that are not standardized. They reported that the search and retrieval software is different for each CD, CD-ROMs often have no installation instructions or user documentation, and they are not user-friendly.
- Librarians indicated that some users are still intimidated by electronic mediums and computers. Most users ask librarians to help them search for materials on the web and frequently need help downloading large files.
- Librarians noted that since most Government websites only contain the most recent information, they are concerned about users having permanent public access to retrospective Government information on the web in the future.

Librarians' Concerns: User Fees, Hardware, Training, and Costs

- Although none of the libraries visited currently charge fees for printing materials from the Internet or CD-ROMs, all three librarians are either considering charging fees or are planning to charge fees and expressed concerns about how this will affect their patrons.
- Users do not have access to enough workstations, so the libraries must limit use. Also, if libraries had additional money for hardware, they would order hardware in support of CD-ROMs (e.g., a new CD-ROM server and an 18-disk CD changer). (Even though CD-ROM is the least preferred medium and declining in number in the FDLP.)
- All librarians interviewed expressed concerns about finding time and money to train librarians and staff, especially on using CD-ROM products, but also on downloading files, effectively searching the Internet for Government information, and creating and maintaining web pages. They welcome any additional training on using GPO Access, Geographic Information Systems, etc.
- Time and money permitting, librarians expressed interest in establishing partnerships with GPO and other Government agencies to put some retrospective online Government information on their servers so users can have reliable access to it in the future. In addition, librarians would like to provide outreach to public schools, community centers, etc., to educate students and adults about the wide variety of valuable information available from the Federal Government.
- One librarian expressed strong feelings about the need for Congress to provide long-term financial support to Federal depository libraries so they can continue to provide permanent public access to digital materials. This librarian's perspective was that the cost to provide access to electronic Government information is steadily increasing.

Agency Meetings

Meetings were held with four agencies between September 14 through September 24, 1998:

- Department of Health and Human Services
- Environmental Protection Agency
- U.S. Department of Education
- U.S. Department of Commerce

Although meetings also were held with the U.S. Supreme Court and the National Archives and Records Administration (NARA), these two agencies did not respond to the agency discussion questions in the agency meetings; they chose to discuss the survey questionnaire only. However, Lewis Bellardo, the Deputy Archivist of the United States, sent in written responses to the discussion questions (Appendix G).

The National Commission on Libraries and Information Science (NCLIS) provided discussion questions for the agency meetings; Westat modified some of the questions with NCLIS's approval. The purpose of the agency meetings was to supplement survey data by collecting more general information on electronic Government information products that are not product-specific. For example, one of the survey objectives is to assess the cost-effectiveness and usefulness of preferred medium and format standards, an issue that was not directly addressed on the survey. In addition, the agency meetings afforded NCLIS, GPO, and Westat an opportunity to review the survey questionnaire with agency respondents and to address any questions they might have.

Highlights of the agency meetings are provided below. For a more detailed summary of the responses to the 12 questions posed to agencies, see Appendix G.

Agency Meeting Highlights

Preferred Mediums and Formats

- Agencies interviewed reported using the same preferred medium and format standards as those reported by survey respondents: web, CD-ROM, bulletin board; HTML, PDF, and ASCII. Additional preferred formats mentioned by agency representatives include TIFF, JPEG, and Lotus/Domino.
- All agencies are exploring a wide range of innovative and creative web design approaches including the use of SQL, Oracle, ColdFusion, and animated GIFs. Some examples of ways in which agencies are utilizing web technologies include data warehousing, interactive GIS, multimedia CD-ROM, live "real-time" web casting of selected speeches, and real-time forecasting of air pollution levels for 22 states.
- Four of the five agencies have guidelines or "best practices" for presentation and organization of products or publications on the web. Most of the guidelines discuss preferred formats for some types of products. The most common problem experienced by the agencies in this regard is compliance issues (i.e., encouraging personnel to adhere to them).
- There are some trends for migrating certain families of products to the web for newsletters, training manuals, annual reports, and conference proceedings and presentations.
- Agencies consider many factors when making decisions to create/retain products in more than one medium: budget, cost, accessibility to users, and size of audience the product reaches. The

decision-making process varies from agency to agency and sub-unit to sub-unit.

Assessing User Needs

- All agencies reported involving users in testing and evaluating the usefulness of the web and CD-ROM products. The most frequently used assessment methods are focus groups, videotaping of users, and online user surveys. Agencies are using the results of these evaluation methods to add and change some formats and mediums as well as content.
- Four of the five agencies interviewed reported that they maintain some type of GILS records to help the public locate their information resources.

Information Life Cycle Management, Permanent Public Access, and Permanent Retention

- No agencies are addressing the following key information resources management issues: permanent public access, information life cycle management, and permanent retention. (The expert interviews provide some insight into the reasons that agencies are not addressing these issues. See the summary section of this report.)

Cost-Effectiveness of Various Mediums and Formats

- No agencies have conducted a formal cost-benefit analysis for creating products in formats and mediums for distribution to the Federal Depository Library Program. Generally, agency representatives reported it costs less to create products for the web because they can avoid production, printing, and distribution costs for paper and CD-ROM products.

Expert Interviews

The interviews with six experts also enriched and supplemented the survey findings. Since the interviews were conducted after the site visits and agency meetings, they were helpful in providing a broad context within which the survey findings could be viewed.

The expert interviews were conducted between October 27 and November 24, 1998. Telephone interviews were held with two webmasters, two preservation specialists, and two professors of information resources management. These experts were selected from a list provided by the NCLIS. Highlights from each set of interviews are provided here. (See Appendix H for a detailed summary of each telephone interview.)

Interviews With Webmasters

Highlights from interview with webmasters Jerry Malitz, National Center for Education Statistics (NCES), and Linda Wallace, the Internal Revenue Service (IRS), on October 27, 1998.

Preferred Formats

- The IRS, unlike the other agencies surveyed, primarily uses SGML, followed by PDF, HTML, and Postscript. They train their authors to use SGML because they consider it "intelligent data" that can automatically generate other formats (e.g., web, BBS, Fax on Demand) through templates and filters. All NCES publications are in PDF, then HTML (optional); they rarely put an entire publication in HTML format only.
- The IRS has conducted a cost-benefit analysis of the costs of delivering requests through different formats. They have found that it costs $3 per phone call to fill a request, 1 cent to access their Internet site for forms, etc., and $2.50 to make a CD-ROM containing 5 years of IRS publications.
- IRS indicates that it provides permanent public access to tax information online for 5 years, and from their "core repository library" for about 14 years, but not for every application. However, this 5 to 14 years means that IRS provides *current* but not *permanent* public access to their Government electronic products.
- All IRS documents are ADA-compliant, online searchable, and downloadable.

User Needs

- Both IRS and NCES assess and evaluate the effectiveness of their web sites with advisory groups (IRS), or for NCES, through an Internet Working Group made up of representatives from each program area.
- Both agencies have GILS records.

Interviews With Preservation Specialists

Highlights from interview with preservation specialists Evelyn Frangakis from the National Agricultural Library (NAL) and Abby Smith from the Council on Libraries and Information Resources (CLIR), November 10, 1998.

Goals of Preservation

- It is useful to think about preservation goals such as enhancing the long-term preservation of and access to information of enduring value for as long into the future as possible.
- There is no standard accepted method of ensuring long-term access to digital information. It may be more accurate to say that one of the

primary goals of preservation is to set up systems that "sustain predictable levels of loss."

Barriers to Preservation of Digital Materials

- The concept of preservation in the traditional preservation world examines the concept of permanence, but in the print world the concept of permanence relates to chemical inertness and mechanical durability. These concepts do not translate easily into a digital world.
- There are two problems with digital preservation: (1) media in which information resides may be unstable; and (2) software/hardware configurations on which information is stored becomes obsolete so quickly that even when one migrates information from one system to another, much of the data and functionality are lost.
- Other barriers to digital preservation include that it is difficult to understand what we can and cannot do under current copyright law, and any transmission link is as strong as the weakest link. The weak link in the transmission of electronic information is human beings, not technology (e.g., no one agency or organization has stepped forward to address issues like information life cycle management). Preservation of information must be thought about at the creation stage, not after the information has been collected and disseminated.
- One of the core infrastructure problems is the need to create a failsafe archives mechanism for materials that disappear from the web.

Current Preservation Models and Initiatives

- NAL and partner institutions are implementing a model for permanent public access and preservation of agricultural literature that addresses all the key issues in information resources management: inventory and life cycle of information, permanent public access, technical requirements, and user access and retrieval. (NAL is one of the few examples for ensuring a failsafe archives for preservation of agricultural literature.)

CLIR Initiatives

- CLIR commissioned a report by Jeff Rothenberg from RAND Corporation on emulation. (Emulation is the process of imitating one system with another so both accept the same data, execute the same programs, and achieve the same results.)
- CLIR commissioned an analysis of migrating file formats to do a risk assessment associated with those file formats during migration.

- CLIR identified a computer scientist at Carnegie Mellon University, John Ockerbloom, who has developed a system of file conversion called TOM (Typed Object Model), a type of migration that converts web-based materials to different file formats.

Interviews With Information Resources Management Specialists

Highlights from interviews with John Bertot, November 18, and Charles McClure, November 28, 1998. (These two telephone interviews were held separately.)

Barriers to Successful Implementation of Information Resources Management Initiatives

- Agencies are struggling with issues such as permanent public access, information life cycle management, and permanent retention due to a general lack of information resources management (IRM), as well as organizational policy integration for Federal Government legislation and initiatives.
- Agencies do not view information as a strategic resource that is directly related to agency missions. Most Government IRM initiatives focus on the technology side of IRM because it is tangible.
- Sometimes smaller agencies are more successful in implementing IRM initiatives due to fewer organizational and communication barriers to working collaboratively.
- The Information Technology Management and Reform Act of 1996 did little to clarify the role of the CIO and IRM staff, so agencies are now struggling with what to do with these functions.
- Agency resources are now almost exclusively devoted to Y2K efforts with little time and resources left to devote to IRM, standards, and operability.
- Staffing and training are critical for both IRM and CIO staff.
- Challenges for agencies in the next few years include how to coordinate information technology and information technology management, interoperability and standards that cut across agencies, and education and training of staff.

5

Discussion of Quantitative and Qualitative Findings

This section synthesizes, integrates, and discusses issues and the major themes that emerge from the survey and the qualitative data collection activities, including the interviews with Federal depository librarians, agency personnel, and other experts, and the literature review. The section is arranged by the following key study issues:

- Preferred mediums and formats,
- Evaluating websites,
- Cost-effectiveness of formats and mediums,
- Depository library needs,
- Public access (public domain and user fees),
- Permanent public access and preservation.

Preferred Mediums and Format Standards

Survey respondents and agency representatives reported they most often use the following mediums:

- Paper
- Web
- CD-ROM
- Bulletin board systems (to a lesser degree)

Both respondents and representatives also reported use of the following formats:

- HTML
- PDF
- GIF
- ASCII
- TIFF

However, most agencies whose products were surveyed use these mediums and formats as a common agency practice, rather than as an agency mandate. In addition, agency representatives and webmasters reported they use SGML, Oracle (with ColdFusion or SQL), JPEG, and TIFF because these formats meet the information needs of their individual constituents or are used in some of their creative web approaches. The IRS is one of the few agencies interviewed that uses SGML. IRS' Linda Wallace, one of the webmasters who served as an expert consultant for this project, indicates that most agencies do not use SGML because it is difficult to use. But Wallace noted that IRS uses SGML because it is much more robust, and it is easy to change a document format to match customer needs (e.g., tax law information for consumers and for lawyers). (See Appendix H for detailed notes on the telephone interview with Linda Wallace.)

A few survey respondents indicated they are planning to change to or add XML or other object-oriented formats. XML may be appealing to some agencies because data can be stored in a format provided by XML that is transferable to a wide range of hardware and software environments (Bryan, 1998, p. 14). In addition, according to Stuart Culshaw, XML makes it easier for authors to produce documents for many different output mediums (i.e., paper, online help, web) from a single source (Culshaw, 1998, p. 7).

Most of the agency representatives who participated in the meetings also reported that their agencies have established written guidelines or "best practices" that specify preferred formats for the presentation of information on the web. Even though these guidelines are not agency-mandated, they seem to be a common agency practice. Several of the agencies interviewed indicated they have modified or adopted their agency guidelines from the guidelines established by the Federal Web Consortium in 1996.

The Consortium, founded in 1994 by the National Science Foundation and the U.S. Nuclear Regulatory Commission, established guidelines with other Government agencies (see http://www.dtic.mil/staff/cthomps/ guidelines/). The guidelines provide suggestions to help the Federal community accomplish agency missions to improve services to customers. Consortium guidelines cover a wide range of topics including:

- Home page checklist (content, navigation/organization, style/markup);
- File formats (i.e., agencies should not be restricted to proprietary formats such as WordPerfect, Microsoft Word, SAS, PDF);
- Rationale for using certain kinds of formats such as HTML, GIF, and JPEG;
- Guidelines for formats to be used for downloading or display (e.g., HTML, GIF, JPEG, PDF, Postscript); and
- Emerging standards.

Agency representatives indicated that one of their biggest challenges is to convince personnel from all program areas to follow the agency's internal guidelines when creating products for the web. Another challenge for agencies is to consolidate web guidelines from different agency sub-units so they are complementary rather than contradictory.

Evaluating Websites

Agency representatives, per OMB Circular A-130 and the Government Performance and Results Act of 1993, are assessing the usefulness of their websites and CD-ROMs as part of a larger effort to measure program effectiveness. Focus groups, online customer surveys, and videotaping of customers online are the most common ways in which agencies evaluate and test products on their websites.

One objective of the evaluation is to test both formats and web approaches. Based on the evaluation results, agencies may change or add formats. For example, one agency, after testing their site with children, eliminated PDF files on the site and made it more interactive. Another agency made the decision to keep their BBS because many of their international users do not have ready access to the web. One agency webmaster indicated that the needs of their business clients, who participate on their advisory board, help drive their format needs. A fourth agency stores its documents in TIFF format for image and textual data. As customers request documents, the agency converts them to PDF so customers can download the material. A fifth agency created a simple set of rules for producing CD-ROMs based upon user input: keep it simple to use, intuitive, and self-tutorial.

User needs for easy access to electronic information products will continue to affect how agencies make decisions about formats and mediums. Bertot and McClure suggest that more agencies should continue to monitor the information needs of the public as well as targeted constituencies to enhance current access to electronic Government information products (Bertot and McClure, 1997, p. 288).

Cost-Effectiveness of Formats and Mediums

None of the agency representatives who attended the agency meetings has conducted a formal cost-benefit analyses for producing or creating products in preferred or emerging formats, mediums, or online approaches for distribution to the FDLP. Most agencies reported that migrating products to the web substantially reduces printing and distribution costs associated with paper mediums. However, the crosstabs in tables 28-29 reveal that many Government products are still produced in more than one medium and often in more than one format. Providing permanent public access to electronic mediums ultimately may exceed the one-time costs associated with producing and distributing the same information in print or microform (GPO, 1996, p. 24 and A71-A74).

In her role as Chief, Electronic Information Services, at the Internal Revenue Service, Linda Wallace has analyzed the costs of *delivering* documents to customers (Appendix H). She found that:

- It costs IRS $3 per call for the public to call into their toll-free number and for IRS to fill the request.

- The cost to IRS for the public to use the Internet to access and use the forms is 1 cent, a difference of 300 to 1. (However, this shifts the cost to the public, who must have access to the Internet.)
- It costs IRS $2.50 to make and distribute to *all* public libraries (including the Federal depository libraries) each CD-ROM containing 5 years of tax forms, instructions, and publications.

Based on these numbers, the IRS has made some internal decisions about where they will focus their resources and time in order to reach the maximum number of customers in the most cost-effective manner.

Depository Library Needs

Since depository librarians serve as the intermediary between the users and electronic information products, their observations and experiences about user and library needs are critical. In general, the five agencies interviewed focused on public users or their target audiences rather than depository library users when discussing usage of their electronic Government information products.

First, the librarians interviewed emphasized that many patrons still prefer Government information in paper mediums, followed by the web and then CD-ROM. The respondents surveyed indicated that many of their products are produced both in paper and on the web.

Second, librarians expressed concerns about lack of standardization for producing Government CD-ROMs. One agency representative indicated that they are undertaking several initiatives to make their CD-ROMs more user-friendly by making them as intuitive as possible and incorporating a user testing component into the production schedule.

A third important concern for the librarians interviewed is the rising cost of computer hardware and the simultaneous rise in user expectations for state-of-the-art computer workstations. Although the three libraries recently received updated computer workstations that met or exceeded the recommended minimum guidelines for depository libraries, they are beginning to change their policies on access to workstations by placing a time limit on their use.

A fourth issue concerns the rising costs to purchase and maintain new equipment, which have caused depository librarians to reconsider their policies on charging printing fees. One librarian indicated that their library already charges patrons for photocopying materials; this change is not dramatic, but it does affect the concept of no-fee access when an overwhelming number of products are offered on the Internet.

Fifth, time and resources to train library staff (and patrons) on how to use the new technology (i.e., how to download files), conduct Internet searches, design and develop their own websites, and load, search, and use

CD-ROMs are major concerns expressed by the depository librarians interviewed. The fact that Government information exists in a variety of mediums and formats only increases rather than diminishes the need for training.

Finally, all librarians are troubled by how GPO, the FDLP, and Government agencies will address the problems of permanent public access to electronic information products that are constantly being replaced and updated by new ones. In addition, the preservation of retrospective electronic Government information is an issue of concern.

Public Access

The survey data revealed that 15 percent of the products surveyed are *not* in the public domain, for all or part of the product. In addition, user fees are charged for 30 percent of the products. These data suggest that these two critical public access goals have not yet been achieved.

Permanent Public Access to and Permanent Retention of Electronic Government Information

Perhaps more than any other issues, permanent public access and preservation pose two of the greatest challenges to the FDLP, and ultimately to the public. Each of the experts raised different issues and shared various perspectives about these issues. It might be helpful here to summarize their perspectives and describe initiatives underway to address the problems associated with the provision of permanent public access and preservation.

Most of the survey respondents indicated that permanent access is currently provided for the products surveyed, although most of the responses indicated that this concept is not fully understood and that access is not provided by the agency responsible for the product. Instead, they are relying on GPO, Federal depository libraries, the National Technical Information Service, or other agencies to provide this permanent public access. In its policy and planning document, *Managing the FDLP Electronic Collection* (see http://www.access.gpo.gov/su_docs/dpos/ecplan.html), GPO states that "the 'first-level' collection management activity depends upon knowledge that the products exist. In order to ensure current and permanent access, GPO will …rely on notification from and outreach to other agencies and notification from the depository library community."

The responses of agency representatives on the issue of permanent public access may provide additional information about the problem. Most agency representatives said their agencies had not discussed the issue or were exploring the issue to see how it should be addressed, and they indicated that they did not understand the concept of permanent public access in relation to permanent retention. The one exception was the representative from National Archives and Records Administration, who is clear about the agency's role to provide permanent public access to its own products.

It might be helpful here to clarify the distinctions between the two concepts. GPO's definition of permanent public access "means that electronic Government information products within the scope of the FDLP remain available for *continuous*, no-fee public access through the program" (GPO, 1998, p. 19).

Lewis Ballardo, deputy archivist of the United States, in a recent article in the *Washington Post* (March 12, 1999, p. A01) stated that the problem of digital preservation must be addressed "or memory will be lost for the latter half of the 20th century." In addition, Bellardo, in a written response to agency questions, articulated agency responsibilities to GPO for permanent public access and to NARA for permanent retention. GPO will accept products in all mediums to provide continuous, no-fee public access, if notified by agencies that access is being discontinued. Agencies are responsible for transferring those products that are scheduled as permanent records (official records as defined by Federal Records legislation) to NARA.

Linda Wallace described the IRS' methods for providing current public access to their materials. Using SGML format, the IRS has built and maintains a core knowledge repository to generate media output in any application to respond to customer needs. The repository maintains materials for 14 years, but not for every application. In addition, all tax forms, publications, instructional materials, etc., are available online for 5 years. Since none of the agencies interviewed is providing permanent public access to its products, it was useful to ask two information resources management experts, John Bertot and Charles McClure, to provide some larger context within which the problem can be viewed.

Perspectives on Permanent Public Access and Information Life Cycle Management from Information Resources Management Experts

Both Bertot and McClure have extensively studied and taught information resources management (IRM). They attribute the lack of successful implementation of IRM initiatives in the Federal Government to the following factors:

- There is no comprehensive integrated Federal IRM policy; current policies do not adequately address permanent public access, information life cycle, and electronic records management.
- There is no strategic vision of IRM by agencies; information is not viewed as a resource that should be used to accomplish agency missions.
- Most agency initiatives focus on the technology side of IRM because it is tangible.
- Most agencies are targeting their information technology resources toward Y2K efforts.
- There is no clear distinction between the role of information resources managers and CIOs.

- There is no ongoing training for IRM and CIO staff.

(See Appendix H for detailed notes on telephone interviews with Bertot and McClure, and Bertot and McClure, 1997, pp. 280-282.)

There are many IRM policy instruments from the Paperwork Reduction Act of 1980 and 1986, OMB Circular A-130 (1985; and 1993 and 1994 revisions) through the Information Technology Management Reform Act (ITMRA) of 1996 and Executive Order 13011 (July 1996). But Bertot and McClure (1998) emphasize that there is still a lack of an integrated policy. For example, in their focus group with IRM managers, Bertot and McClure noted that managers felt that the Paperwork Reduction Act assumed that the managers understood and knew how to manage the information life cycle, but they agreed that agency management at all levels never grasped the concept either in theory or in practice. In addition, the ITMRA that created a position for an agency-based CIO to oversee agency IRM activities and to provide education for agency IRM personnel and agency managers (among other things) does not clarify the relationships between and among CIOs and IRM managers. Consequently, it is ambiguous about whether the agency CIO's organization replaces, incorporates, or is separate from current agency IRM functions.

Given this larger context, it is not surprising that IRM issues such as information life cycle management, preservation, and permanent public access have not been adequately addressed. Conventional organizational barriers such as size, culture, poor communication and interaction across and within agencies, and lack of ongoing, strategic training for IRM and CIO staff may exacerbate these challenges faced by agencies (telephone interview with Bertot, Appendix H). (As an example, McClure states that IRM graduate students' degrees are useful for about 1-2 years after they graduate. After that, their skills are 50 percent out of date; telephone interview with McClure, Appendix H.) Several experts are involved in initiatives that address some of these important IRM issues.

Current Initiatives on Permanent Public Access and Permanent Retention

Several agencies, organizations, and Federal depository libraries with partner institutions are exploring ways to address the problems of permanent public access, preservation, and electronic records management. Appendix H contains more detailed information about each of these initiatives that will be summarized here.

Abby Smith from the Council on Libraries and Information Resources (CLIR), and Evelyn Frangakis from the National Agricultural Library (NAL) are supporting research and testing models for permanent public access and preservation. The three CLIR initiatives are described below:

- A commissioned report by Jeff Rothenberg from RAND Corporation on emulation. The report has been completed and was published in January 1999. The report describes the weaknesses of migration and the strengths of emulation and sets up a research agenda to develop emulation. (Log onto publications on CLIR site for a summary of Rothenberg's report: http://www.clir.org/pubs/reports/rothenberg/contents.html.)
- A commissioned analysis of migrating file formats to support a risk assessment associated with those file formats during migration. The study by Cornell University, using data from the Mann (agricultural) Library, will use numeric file formats and databases and text formats. The report, to be finished by September 1999, will include analysis and a template that others can use for doing a risk assessment of migration of those file formats.
- CLIR is working with John Ockerbloom, a computer scientist at Carnegie Mellon University (CMU) who has developed a system of file conversion called TOM (Typed Object Model). (See www.cs.cmu.edu/afs/cs.cmu.edu/user/spok/www/defense/index.html). CLIR would like to see if they can bring his concepts into fuller application.

Smith describes NAL and its efforts to provide permanent public access and to preserve agricultural literature as one of few examples where a failsafe archives might work, partly because NAL is a national library dedicated to one type of literature. Evelyn Frangakis is involved in NAL's efforts to develop its own preservation program that includes a traditional preservation program and digital efforts. Their digital efforts are two-pronged:

- Conversion of brittle paper materials into digital products by working with the best available guidelines to implement good preservation practices. They will make this digital material available on the web.
- Development of a program to preserve USDA digital materials (i.e., materials that are born digitally).

In addition, Frangakis is also involved in a national effort to preserve agricultural literature. The U.S. Department of Agriculture's Digital Publications Preservation Steering Committee was established in 1998 to oversee the implementation of the plan, *A Framework for the Preservation of and Permanent Public Access to USDA Digital Publications*. This group met for the first time in October 1998. The plan may serve as a model that other agencies or institutions can adapt. USDA is incorporating the following needs and considerations into its framework:

- Inventory and life cycle management,
- Technical requirements, and

- User access and retrieval.

USDA is moving ahead to implement the plan. The USDA CIO accepted the report, and under Frangakis' guidance, NAL established a national steering committee made up of representatives from USDA and from agribusiness, the research library community, the U.S. Agricultural Information Network (USAIN), Federal partners, etc. The group will meet on a quarterly basis for the first 2 years. They will establish test groups to explore the technical and funding issues. They are hoping to secure funding for a pilot project to test the framework on an agency within USDA to see how manageable it will be for full-scale implementation (see Appendix H for a detailed description of the Framework).

Finally, GPO has established partnerships with several depository libraries and Federal agencies to provide permanent public access to remotely accessible electronic Government information products. Three such partnerships include:

- Partnership with the University of Illinois at Chicago's Richard J. Daley Library and the U.S. Department of State (DOS) to provide permanent access to remotely accessible electronic DOS information products.
- An Online Computer Library Center/GPO pilot project with the U.S. Department of Education/National Library of Education (NLE) provided free public access through the FDLP to remotely accessible electronic Educational Resources Information Center (ERIC) documents.
- A project with the Department of Energy (DOE) Office of Scientific and Technical Information (OSTI) to provide public and depository library access to DOE technical reports in image format via the web service called "DOE Information Bridge" (Aldrich, 1998).

Preservation specialists Smith and Frangakis noted that technology is not the biggest barrier to permanent access and preservation; the human infrastructure is not in place yet that would ensure permanent access and preservation (telephone interview with Smith and Frangakis, Appendix H). The plans and initiatives described here, coupled with the recommendations for training, policy integration, and support for best practices to implement policies are a few of the strategic actions that appropriate agencies, libraries, and institutions should undertake to ensure that future generations will have unrestricted, no-fee access to Government information in all formats.

Next Steps

As a followup effort, NCLIS indicated that they will use these findings as a point of departure and analyze them in greater depth. It is expected that this followup effort will result in broad conclusions and recommendations to the President and Congress about how the problems and challenges revealed in this study can be constructively addressed.

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Appendix A

Agency Study Coordinator Meetings Agenda

Assessment of Electronic Government Information Products
Agency Study Coordinator Meetings
July 23, 1998, and August 4, 1998

The Benton Foundation
1634 I Street, N.W.
11th Floor
Washington, D.C.

Agenda

9:30 – 9:45	Background and Welcome *Robert S. Willard, Executive Director, National Commission on Libraries and Information Science (NCLIS)* *Francis J. Buckley, Jr., Superintendent of Documents, Government Printing Office (GPO)*
9:45 – 10:15	Objectives, Timetable, and Required Actions *Forest Woody Horton, NCLIS Study Manager*
10:15 – 10:30	Coffee Break
10:30 – 12:15	Specific Data Requirements (question-by-question review of survey instrument using GPO Access as a specific product example) *Gil Baldwin, GPO* *T.C. Evans, GPO* *Ric Davis, GPO* *Denise Glover, Westat* *Elizabeth Farris, Westat* *Steve Fischer, Westat*
12:15	Wrap-up and Closing *Forest Woody Horton*
12:30	Adjourn

Appendix B

List of Agency Coordinators and Other Key Officials

Agency Coordinators and Other Key Officials

Agency	Agency Coordinator(s)
Legislative Branch	
Library of Congress	Nancy Davenport Maggie Smith
United States Congress	Eric Peterson
Judicial Branch	
Administrative Office of the U.S. Courts	Gloria Malkin
Supreme Court of the United States	Shelley L. Dowling Wilma M. Grant
Executive Branch	
Department of Agriculture	Betty Behal
Department of Commerce	Vera Whisenton Cynthia Banicki
Department of Defense	William Beyer Rick Silva
Department of Education	Chiquitta Thomas Linda Tague
Department of Energy	Karen Spence
Department of Health and Human Services	Deborah Burris Fred Wood
Department of the Interior	Claude Christensen Bob Mehnert
Department of Justice	Regina Byrd Chris Rudy Dennis Feldt
Department of Labor	Maureen Hill Deborah Klein

Agency	Agency Coordinator(s)
Executive Branch (continued)	
Department of State	Colleen Hope Dan Clemmer
Department of Transportation	Barbara Post Robert Zarnetske
Department of the Treasury	Gladys Myatt Mike Conklin
Environmental Protection Agency	Richard Huffine
Executive Office of the President	Peter Weiss
General Services Administration	Odessa Brown
National Aeronautics and Space Administration	Roland Ridgeway
National Archives and Records Administration	Debra Leahy
Securities and Exchange Commission	Bert Lee
Smithsonian Institution	Robert Schelin
Social Security Administration	Terry Hynes

Appendix C

List of Participating Agencies and Products Surveyed

Participating Agencies and Products Surveyed

Legislative Branch

	Survey status
Library of Congress	
American Memory: Historical Collections	CM
Braille Books on Disk	CM
Cataloger's Desktop	CM
CD BLND	CM
Classification Plus	CM
Country Studies	CM
French Poster Art	CM
THOMAS	CM
Thomas: A Century of Lawmaking for a New Nation	CM
Thomas: Bill Summary and Status	CM
Thomas: Committee Reports	CM
Thomas: Congressional Record	CM
Thomas: Early Congressional Documents	CM
Thomas: Enactment of a Law	CM
Thomas: Federalist Papers	CM
Thomas: Floor Activities for the House & Senate	CM
Thomas: House Committee Schedules	OS
Thomas: House Roll Call Votes	CM
Thomas: How Our Laws are Made	CM
Thomas: Major Legislation	CM
Thomas: Senate Roll Call Votes	CM
Thomas: Text of Bills	CM
United States Congress	
Congressional Bills	CM
Congressional Directory	CM
Congressional Record (bound permanent)	CM
Congressional Record (daily)	CM
Hearings, Reports, & Prints: House Agriculture Committee	*
Hearings, Reports, & Prints: House Appropriations Committee	*
Hearings, Reports, & Prints: House Education and Workforce Committee	*
Hearings, Reports, & Prints: House Government Reform and Oversight Committee	*
Hearings, Reports, & Prints: House Judiciary Committee	*
Hearings, Reports, & Prints: Joint Committee on Taxation	CM
Hearings, Reports, & Prints: Senate Appropriations Committee	CM
Hearings, Reports, & Prints: Senate Armed Services Committee	CM
Hearings, Reports, & Prints: Senate Commerce Committee	*
Hearings, Reports, & Prints: Senate Foreign Relations Committee	*

*Survey nonrespondent.
CF = Complete by fax
CM = Complete by mail
CP = Complete by phone
OS = Out-of-scope

	Survey status
Legislative Branch (continued)	
United States Congress (continued)	
Hearings, Reports, & Prints: Senate Judiciary Committee	CM
Hearings, Reports, & Prints: Rules and Administration Committee	*
Serial Set	*
United States Code	CM
Judicial Branch	
Administrative Office of the U.S. Courts	
Federal Rules of Civil Procedures	CM
Judicial Business of the United States Courts	CM
The Official Bankruptcy Forms Collection	CM
The Third Branch	CM
Understanding the Federal Courts	CM
Supreme Court of the United States	
Bench Opinions of the Supreme Court	CM
Rules of the Supreme Court	CM
Slip Opinions of the Supreme Court	CM
U.S. Reports	CM
Executive Branch	
Department of Agriculture	
Agent Orange	CM
AgExporter	CM
AGRICOLA Database	*
Agricultural Prices, Monthly	CM
Agricultural Statistics	CM
Aquaculture	CM
Continuing Survey of Food Intake By Individuals	CM
Crops County Data	CM
Fact Sheets	CM
FAS Hot Country Pages	CM
Fire Effects Information System	CM
Forest Land Distribution Data for the U. S.	CM
Leaflets	CM
Market News	CF
NAFTA Agricultural Fact Sheets	CM
Ornamental Horticultural Multimedia Project	CM

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Executive Branch (continued)

	Survey status
Department of Agriculture (continued)	
Outlook for U.S. Agricultural Exports	CM
Statistical Bulletins	CM
The Plant Genome Database Collaboration	CM
Wildland Fire Assessment System	CM
World Agricultural Supply and Demand Estimates	*
Department of Commerce	
AgroBase Database	*
Cen-Data	OS
CenStats	*
Census of Population and Housing	*
Commerce Business Daily/CBDNet	CM
County and City Data Book	CM
Current Population Reports	*
Economic Census Reports	*
Federal Research in Progress Database	*
Geophysics of North America	*
GOV.Research-Center	*
Imports/Exports CD	CM
Local Climatalogical Data (for states)	CM
National Trade Data Bank	CM
NTIS Database	*
Regional Economic Information System (REIS)	CM
Solar Radio Bursts	*
Statistical Abstract of the United States	CM
STAT-USA/Internet/State of the Nation	CM
STAT-USA Newsletter	CM
Survey of Current Business	CM
TIGER/Line	CM
U.S. Industry and Trade Outlook	CM
USA Counties	CM
Zip Code Area CD-ROM	CM
Department of Defense	
Airman Magazine	CM
Airpower Journal	CM
All Hands	*
Defense Logistics Agency Publishing System	CM
Joint Electronic Library	CM

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Executive Branch (continued)

	Survey status
Department of Defense (continued)	
Marines Magazine	CM
Notice to Mariners	CM
Soldiers Magazine	CM
Technical Manuals	CM
Department of Education	
Condition of Education	CM
Digest of Education Statistics	CM
Disability Statistics Abstract	CM
Disability Statistics Report	CM
EDsearch, Education Statistics on Disk	CM
ERIC Database	CM
Guide to Education Programs	CM
Helping Your Child (series)	CM
NAEP (Nat'l Assessment of Educational Progress) Mathematics	CM
National Education Goals Report	CM
Projections of Education Statistics	CM
Resources in Education	CM
Student Guide	CM
Think College? Me? Now?	CM
Department of Energy	
Country Analysis Briefs (CABs)	*
DOE Directives	*
DOE Information Bridge	CM
DOE R&D Project	CM
Electric Power Annual	CM
Electric Power Monthly	CM
Emissions of Greenhouse Gases in the U.S.	*
Energy Consumption & Carbon Emissions by Region	*
Energy Files	CM
Energy InfoDisc	CM
Energy Science and Technology Database	CM
International Energy Outlook	CM
Monthly Energy Outlook	*
National Education Goals Report	*
Petroleum Supply Annual	CM
State Energy Data Reports	CM
State Energy Data System	CM

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Executive Branch (continued)

	Survey status
Department of Energy (continued)	
Weekly Petroleum Status Report	CM
World Energy Consumption	*
Department of Health and Human Services	
Annual Pesticide Residue Monitoring Report	CM
Biosafety in Microbiological and Biomedical Laboratories	CM
CDC Wonder	CM
Clinical Preventive Services	CM
EHP (Environmental Health Perspectives)	CM
FDA Almanac	CM
FDA Compliance Policy Guide	CM
HCFA Health Watch	CM
HCFA's Laws, Regulations, Manuals	*
Healthcare Cost & Utilization Project (HCUP-3)	CM
Medicare and You	CM
Medicare Compare	CM
Morbitity & Mortality Weekly report	CM
National Health Interview Survey, State Data Files	CM
NIOSHTIC Database	CM
PubMed	CM
Research Activities (Monthly Newsletter)	CM
RTECS Database	CM
SETS: Statistical Export & Tabulation System	CM
Vital and Health Statistics (Rainbow Series)	CM
Department of the Interior	
Contaminant Information Mgt & Analysis System	CM
Endangered Species Bulletin	CM
Geographic Names Information System	CM
Metal Industry Indicators (MII)	CM
Mineral Industry Surveys (monthly & quarterly)	CM
Minerals Yearbook	CM
National Survey of Fishing, Hunting & Wildlife &	*
National Wildlife Refuge System Profiles Database	CM
New Publications of the Geological Survey	CM
NPS Statistical Abstract	CM
Preservation Briefs (numbered series)	*
The National Register Information System (NRIS)	CM
Water Resources Abstracts	CM

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Executive Branch (continued)

	Survey status
Department of Justice	
Correctional Populations of the United States	CF
FBI Law Enforcement Bulletin	CM
FOIA Annual Report	CM
Justice Information Center Publications	CM
NCJRS Abstracts Database	CM
Prison and Jail Inmates	CF
Sourcebook of Criminal Justice Statistics	CF
Uniform Crime Reports: Crime in the United States	CM
Department of Labor	
General Wage Determinations Issued Under Davis-Bacon	*
Monthly Labor Review	CM
Occupational Outlook Handbook	CM
OSHA Documents and Files	*
Department of State	
Background Notes	CM
Diplomatic List	*
Dispatch	CM
Key Officers of Foreign Service Posts	*
Maximum Travel Per Diem Allowance for Foreign Area	*
Medical Information for Americans Traveling Abroad	CF
Treaties and Other International Acts Series	*
Department of Transportation	
FAA Statistical Handbook	CM
Highway Statistics	CM
National Transit Database	CM
National Transportation Statistics	CM
Nationwide Personal Transportation Survey	CM
Rail Waybill Data	CM
Transportation Expressions	CM
Transportation Statistics Annual Report	CM
Worldwide Transportation Directory	CM
Department of Treasury	
A Visitors Guide	OS
Arson Investigations Guide, ATF P 2220.1	*
Bonded Warehouse-Manual for Proprietors, Importers & Customs Officers	CM

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Executive Branch (continued)

	Survey status
Department of Treasury (continued)	
Business Taxpayers Information Publications, Pub 1194.B	CM
Buying Treasury Securities, PD P 0009	*
Counterfeiting & Forgery	*
Customs Valuation Encyclopedia, 1980-1997	*
Daily Treasury Statements	CM
Federal Tax Forms	CM
Firearms State Laws & Published Ordinances, ATF P 5300.5	CM
Importing a Car (Pub 520)	CM
Know Your Money	*
Payment of Tax by EFT, ATF P 5000.10	CM
Quarterly Journal (Online)	CF
Tables for Redemption Values for US Series E Savings Bonds & Savings Notes	CM
Tables of Redemption Values for US Series EE Savings Bonds	CM
Tax Guide for Small Businesses, Pub 334	*
The History of Money	OS
The Money Story	CF
Treasury Bulletin	*
U.S. Mint Gift Collection	CF
Your Federal Income Tax, Pub 17	CM
Your Guide to Federal Firearms Regulations, ATF P 5300.4	*
Environmental Protection Agency	
Center for Environmental Info. & Statistics	CM
Consumer Handbook for Reducing Solid Waste	CM
Envirofacts Warehouse	CM
EPA Online Library System (OLS)	CP
Federal Register Environmental Subset	CM
Guide to Environmental Issues	CM
Integrated Risk Information System Database (IRIS)	CP
National Air Quality and Emission Trends Report	CM
National Environmental Publications Information	CM
National Water Quality Inventory: Biennial Report to Congress (305b report)	CM
Recycle City	CM
Sector Facility Indexing Project	CM
Setting the Record Straight: Secondhand Smoke is a Preventable Health Risk	CM
Superfund Hazardous Waste Site Query (CERCLIS Data)	CM
Surf Your Watershed	CM
Test Methods for Evaluating Solid Waste: Physical/Chemical Methods (SW-846)	CM

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Executive Branch (continued)

	Survey status
Executive Office of the President	
Art in the White House -- A Nation's Pride	*
Best Kept Secrets in Government	CM
Budget of the United States	*
FBIS Publications Reports	*
From Red Tape to Results: Creating a Government &	CM
Interactive Citizens' Handbook	*
NAICS Manual	*
OMB Circulars	*
Putting Customers 1st, Serving the American Public	CM
Reinvention Express	CM
The White House for Kids	*
Virtual Library	*
White House Briefing Room	*
White House History (web)	*
White House Tour (CD-ROM)	*
World Factbook	CM
World News Connection	*
General Services Administration	
Catalog of Federal Domestic Assistance	CM
Consumer Information Catalog	CF
Consumer Information Series	OS
Consumer Resource Handbook	CM
Federal Acquisition Regulation	*
Government Registration Service	CM
MarkeTips	*
U.S. Gold	CM
U.S. Government TDD/TTY Directory	CM
United States Online Directories	*
US Government Blue Pages Online Directory	CM
US Real Property Sales List (online title varies)	CM
National Aeronautics and Space Administration	
Aerospace Medicine and Biology	CM
CASI Technical Report Server	CM
NASA Thesaurus	CM
NASA Video Catalog	CM
Patent Abstracts	CM
Scientific, Technical Aerospace Reports	CM

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Executive Branch (continued)

National Archives and Records Administration	**Survey status**
Code of Federal Regulations	CM
Digital Classroom	CM
Emerging Nation	CM
Federal Register	CM
National Archives Information Locator (NAIL)	CM
Online Exhibit Hall	CM
Privacy Act Issuances	CM
Public Laws (slip laws)	CM
United States Government Manual	CM
Weekly Compilation of Presidential Documents	CM

Securities and Exchange Commission	**Survey status**
Administrative Proceedings	CM
Cold Calling	*
Commission Legal Briefs	*
Completed Initiatives of Interest to Small Business	*
Directory of Companies Filing Annual Reports	*
EDGAR Database of Corporate Information	*
Financial Facts Tool Kit	*
Investment Fraud & Abuse Travel to Cyberspace	*
Litigation Actions and Proceedings Bulletin	OS
Litigation Releases	CM
Official List of Section 13 (f) Securities	*
Official Summary of Security Transactions & Holdings	*
Pending Initiatives of Interest to Small Business	*
Plain English Handbook: How to Create Clear SEC	*
SEC Annual Report	*
SEC Concept and Interpretative Releases	CM
SEC Decisions	CM
SEC Docket	OS
SEC Final Rules	CM
SEC News Digest (daily)	CM
SEC Opinions	CM
SEC Proposed Rules	CM
SEC Special Studies	CM
Staff Accounting Bulletins	CM
Trading Suspensions	CM

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CF = Complete by fax
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Executive Branch (continued)

	Survey status
Smithsonian Institution	
Annals of the Smithsonian Institution	CM
Anthology of American Folk Music	CM
Gallery Exhibition Catalogues	*
SIRIS: SI Research Information System	CM
Smithsonian (magazine)	*
Smithsonian Contributions to Anthropology	CM
Smithsonian Contributions to Botany	CM
Smithsonian Contributions to Earth Sciences	CM
Smithsonian Contributions to Marine Sciences	CM
Smithsonian Contributions to Paleobiology	CM
Smithsonian Contributions to Zoology	CM
Smithsonian Folklife Festival: Culture of, by & . . .	*
Smithsonian Folklife Studies Series	CM
Smithsonian Institute Research Reports	*
Smithsonian Photographs Online	*
Smithsonian Studies in Air and Space	CM
Smithsonian Year	*
Social Security Administration	
Documents Published by the SSA Historian	CM
Publications Information Pamphlets and Fax Sheets	CM
Request a Personal Earnings & Benefits System	CM
SSA Publications on CD-ROM	CM

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Appendix D

Coordinator and Respondent Cover Letters

United States
National Commission on
Libraries and Information Science

October 1998

Dear Agency Coordinator:

On behalf of the National Commission on Libraries and Information Science (NCLIS) and the Government Printing Office, we would like to thank you for agreeing to distribute this survey of Government Electronic Information Products to agency respondents.

The purpose of this assessment is to: (1) identify medium and format standards that are the most appropriate for permanent public access, (2) assess the cost-effectiveness and usefulness of alternative medium and format standards, and (3) identify public and private medium and format standards that are or could be used for products throughout their entire information life cycle. The broader objective of the survey is to study the long-term impacts of shifting government information products from paper and microform mediums to federal agency web sites and other electronic mediums. We want to ensure that as more government information is available in a variety of electronic mediums and formats, the American public continues to have free and easy local access to this information through the Federal Depository Library Program.

We are requesting that you, as the agency coordinator, promptly distribute the questionnaires to the appropriate personnel in your agency. If you have any questions about this survey, please call Denise Glover at Westat: 301-251-2269 or toll-free at 800-937-8281, ext. 2269. We will send you a copy of the final report once it is completed.

The following suggested procedures and instructions will assist you to successfully distribute the product questionnaires. **However, some agency coordinators have decided to use different data collection procedures. If you are one of those coordinators, it is essential that you explain your procedures to your respondents.**

1. All agency coordinators will receive a full packet from Westat on September 29 or shortly thereafter that contains a cover letter and an information copy of the questionnaire. The coordinator's packet will also include a sealed packet for each product. Please make sure you have a packet for each product on your final list of product selections. If you are missing information or have incorrect information, please call Debbie Alexander at Westat: 301-294-2088, or toll-free at 800-937-8281, ext. 2088.

2. The product packet includes a cover letter to the respondent, a product questionnaire, a glossary of terms, and a postage-paid return envelope.

3. Each product questionnaire contains the following preprinted information: a five-digit ID, the agency's name and submit, and the name of the product.

4. Upon receipt of the packet, please distribute the product packets to the appropriate product respondents in your agency.

1110 Vermont Avenue, N.W. Suite 820
Washington, D.C. 20005-3522
(202) 606-9200
Fax: (202) 606-9203

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5. Due to the specialized nature of many of the questions asked on the survey, it may be necessary for product respondents to consult with other agency personnel such as records managers, information technology staff, planning offices, and others to complete the survey in its entirety. We recommend that you ask product respondents to leave blank any questions they feel uncomfortable answering and to make arrangements for someone in their office or another office with more appropriate knowledge and expertise to answer those questions. If product respondents decide to take this action, we strongly suggest that, if possible, you standardize the arrangements in advance and ensure that all agency respondents are aware of your procedures. One purpose of standardizing arrangements is to **ensure that product respondents do not lose control of a questionnaire because multiple individuals and offices are handling it**

6. Product respondents are responsible for ensuring that **all** questions are answered on their respective questionnaires, even if they must consult with other personnel.

7. To ensure consistency and completeness, you might want to ask your assigned product respondents to allow you to review the surveys before they send them to Westat. You might also request that respondents send you a copy of the completed questionnaire for your files.

8. Product respondents should return completed questionnaires directly to Westat (**not** to you) in the enclosed postage-paid envelope. If product questionnaires are not completed and returned to Westat by the **October 30, 1998** deadline, Westat will attempt to follow up directly with the designated product respondent. However, if respondent information is unavailable or unknown, Westat will contact you for followup.

Respondents are requested to return the survey by **October 30, 1998** by mailing it in the postage-paid envelope to:

Denise Glover
TA 2064
Westat, Inc.
1650 Research Boulevard
Rockville, MD 20850

Thank you very much for your assistance and cooperation. We appreciate the time and hard work you have invested in the coordination activities.

Sincerely,

Robert S. Willard

Robert S. Willard
Executive Director
National Commission on Libraries and Information Science

Francis J Buckley, Jr

Francis J. Buckley, Jr.
Superintendent of Documents
Government Printing Office

United States
National Commission on
Libraries and Information Science

January, 1999

Dear Respondent:

On behalf of the National Commission on Libraries and Information Science (NCLIS) and the Government Printing Office, we are requesting that you complete this survey of Government Electronic Information Products.

The purpose of this assessment is to: (1) identify medium and format standards that are the most appropriate for permanent public access, (2) assess the cost-effectiveness and usefulness of alternative medium and format standards, and (3) identify public and private medium and format standards that are or could be used for products throughout their entire information life cycle. The broader objective of the survey is to study the long-term impacts of shifting government information products from paper and microform mediums to federal agency web sites and other electronic mediums. We want to ensure that as more government information is available in a variety of electronic mediums and formats, the American public continues to have free and easy local access to this information through the Federal Depository Library Program.

We recognize that many respondents will complete surveys for more than one agency product. We also understand the burden this imposes upon you and appreciate the time and effort you will devote to completing the survey. However, we want to underscore the importance of your participation. We will send you a copy of the report summarizing the data from these surveys once it is completed.

Please carefully read all of the following suggested procedures and instructions that will assist you to successfully complete and return the product questionnaires. **However, some agency coordinators have decided to use different data collection procedures. You should contact your coordinator directly to find out if you are to follow the procedures outlined here. If your coordinator has made other arrangements, please contact him/her to determine what they are.**

1. Once you receive your packet(s) from your agency coordinator, please check to make sure each packet contains the following information for each product you are to survey: a cover letter, questionnaire, glossary of terms, and postage-paid return envelope. If you feel you are missing information or have incorrect information, please first contact your agency coordinator. (Your coordinator's contact information is available on the NCLIS web site at www.nclis.gov.) If your coordinator is unable to provide this information, call Debbie Alexander at Westat: 301-294-1088, or toll-free at 800-937-8281, ext. 2088.
2. Each product questionnaire contains the following preprinted information: a five-digit ID, the agency's name and subunit, and the name of the product.

1110 Vermont Avenue, N.W. Suite 820
Washington, D.C. 20005-3522
(202) 606-9200
Fax: (202) 606-9203

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3. Due to the specialized nature of many of the questions asked on the survey, it may be necessary for you to consult with other agency personnel such as records managers, information technology staff, planning officers, and others to complete the survey in its entirety. We suggest you leave blank the responses to questions you feel uncomfortable answering and then arrange for someone in your office or another office with more appropriate knowledge and expertise to answer those questions. Your agency coordinator may have standardized those arrangements in advance and made you are aware of their procedures. **The purpose of standardizing arrangements is to ensure that you do not lose control of a questionnaire because multiple individuals and offices are handling it.**
4. Please note that you are responsible for ensuring that **all** questions are answered on your respective questionnaires, even if you must consult with other personnel.
5. To ensure consistency and accuracy, coordinators might request that they be allowed to review the completed surveys before you return them to Westat.
6. Return completed questionnaires directly to Westat in the enclosed postage-paid envelope by January 15, 1999. Your coordinator may request that you also send him/her a copy of the completed questionnaire.
7. If you have any questions about this survey, please call Denise Glover at Westat: 301-251-2269, or toll-free at 800-937-8281, ext. 2269.

Please return the questionnaire by **January 15, 1999** by mailing it to:

Denise Glover
TA 2064
Westat, Inc.
1650 Research Blvd.
Rockville, MD 20850

Thank you very much for your assistance and cooperation.

Sincerely,

Robert S. Willard

Robert S. Willard
Executive Director
National Commission on Libraries and Information Science

Francis J. Buckley, Jr.

Francis J. Buckley, Jr.
Superintendent of Documents
Government Printing Office

Appendix E

Questionnaire and Glossary of Terms

NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE

GOVERNMENT INFORMATION PRODUCT ASSESSMENT QUESTIONNAIRE

Directions: This form is to be completed *only* for products that are either already in electronic mediums or products that are to be migrated to electronic mediums. Do *not* complete this form for products that will remain in paper or microform mediums only. A product is defined as "a Government publication or other work of the United States Government conveyed in a tangible physical medium such as a book, CD-ROM, etc., or disseminated through an electronic Government information service and intended for public dissemination." (See enclosed glossary for definitions of terms used throughout this questionnaire.) *Complete one questionnaire for each product. (Please note that a Website is not considered a product, although products might be on a Website.)*

A. GENERAL INFORMATION

1. Agency Name: ____________________

Sub-Unit: ____________________

2. Name of Product: ____________________

3. Brief Description of Product: ____________________

____

4. URL for Product Website: ____________________

☐ Check if no Website

B. CURRENT PRODUCT PROFILE

5. How is this product used by the end user? *(Check all that apply.)*

a. Information access and retrieval .... ☐ 1

b. Data analysis (e.g., to support analysis by end user) ☐ 1

c. Other *(specify)* ____________________ ☐ 1

____

____

What types of data are contained within this product?

In **Column A**, indicate which type of data this product contains. *(Check all that apply.)*
In **Column B**, indicate the primary type of data contained in this product. For example, if you checked boxes for items b and f in column A, indicate which of the two is the primary type of data by placing a check in the appropriate box in column B.

Type of data	**A. Type of data contained**	**B. Primary type of data** ***(Check only one)***
	(Check all that apply)	
a. Bibliographic data	☐ 1	☐ 1
b. Graphical data (photos, charts, graphs, tables, drawings)	☐ 1	☐ 2
c. Numerical data	☐ 1	☐ 3
d. Sound	☐ 1	☐ 4
e. Spatial data (maps, coordinate files)	☐ 1	☐ 5
f. Textual data (books, serials, reports)	☐ 1	☐ 6
g. Video	☐ 1	☐ 7
h. Multimedia (sound, video, text, graphics)	☐ 1	☐ 8
i. Other (*specify*)	☐ 1	☐ 9

7a. In what mediums is this product publicly available?

In **Column A**, indicate which type of medium is used. *(Check all that apply.)*
In **Column B**, for each medium used, indicate whether there is a medium standard that is mandated by the agency, a common practice in the agency (although not mandated), other (i.e., not agency-mandated standard or common agency practice, but new and promising and beginning to be used, etc.), **OR** none of these.
In **Column C**, for each type of medium used, check **one** box to indicate the primary type used.

Medium	A. Type of mediums used	B. Standard—Is there...				C. Primary type of medium used *(Check only one)*
	(Check all that apply)	Agency-mandated standard	Common agency practice	Other	None	
		(Check one for each category)				
Pre-Electronic Mediums						
a. Paper	☐1	☐1	☐2	☐3	☐4	☐1
b. Microform	☐1	☐1	☐2	☐3	☐4	☐2
c. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐3
Electronic Mediums						
Magnetic Mediums						
d. Magnetic tape	☐1	☐1	☐2	☐3	☐4	☐4
e. Floppy diskette	☐1	☐1	☐2	☐3	☐4	☐5
f. Hard drive	☐1	☐1	☐2	☐3	☐4	☐6
g. Other *(specify)* ______ Describe medium in more detail ______	☐1	☐1	☐2	☐3	☐4	☐7
Optical Mediums						
h. CD-ROM	☐1	☐1	☐2	☐3	☐4	☐8
i. WORM (Write once, read many disk)	☐1	☐1	☐2	☐3	☐4	☐9
j. DVD (digital video disk)	☐1	☐1	☐2	☐3	☐4	☐10
k. Other *(specify)* ______ Describe medium in more detail ______	☐1	☐1	☐2	☐3	☐4	☐11
Online Mediums						
l. Web	☐1	☐1	☐2	☐3	☐4	☐12
m. Gopher	☐1	☐1	☐2	☐3	☐4	☐13
n. Bulletin Board Systems	☐1	☐1	☐2	☐3	☐4	☐14
o. Other *(specify)* ______ Describe medium in more detail ______	☐1	☐1	☐2	☐3	☐4	☐15

7b. If you checked "Other" category in Question 7a, Column B, please explain. ______________________

____

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8a. Which of the following types of formats does this product use?

In **Column A**, indicate which type of format is used. *(Check all that apply.)*
In **Column B**, for each format used, indicate whether there is a format standard that is mandated by the agency, a common practice in the agency although not mandated, other (i.e., not agency-mandated standard or common agency practice, but new and promising and beginning to be used, etc.), **OR** none of these.
In **Column C**, for each type of format used, check one box to indicate the primary type that is used **within each major category** (e.g., database, spreadsheet, word processing, etc.).

Format	A. Formats used?	B. Standard— Is there...				C. Primary type of format used
	(Check all that apply)	Agency-mandated standard	Common agency practice	Other	None	*(Check one in each category)*
		(Check one for each category)				
Database						
a. Oracle	☐1	☐1	☐2	☐3	☐4	☐1
b. Sybase	☐1	☐1	☐2	☐3	☐4	☐2
c. dBase	☐1	☐1	☐2	☐3	☐4	☐3
d. WAIS	☐1	☐1	☐2	☐3	☐4	☐4
e. MARC	☐1	☐1	☐2	☐3	☐4	☐5
f. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐6
Spreadsheet						
a. Excel	☐1	☐1	☐2	☐3	☐4	☐1
b. Lotus 1-2-3	☐1	☐1	☐2	☐3	☐4	☐2
c. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐3
Tagged Markup						
a. HTML	☐1	☐1	☐2	☐3	☐4	☐1
b. XML	☐1	☐1	☐2	☐3	☐4	☐2
c. SGML	☐1	☐1	☐2	☐3	☐4	☐3
d. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐4
Image						
a. GIF	☐1	☐1	☐2	☐3	☐4	☐1
b. JPEG	☐1	☐1	☐2	☐3	☐4	☐2
c. TIFF	☐1	☐1	☐2	☐3	☐4	☐3
d. PDF	☐1	☐1	☐2	☐3	☐4	☐4
e. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐5
Audio						
a. WAV	☐1	☐1	☐2	☐3	☐4	☐1
b. AU	☐1	☐1	☐2	☐3	☐4	☐2
c. AIFF	☐1	☐1	☐2	☐3	☐4	☐3
d. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐4
Video						
a. MOV	☐1	☐1	☐2	☐3	☐4	☐1
b. MPEG	☐1	☐1	☐2	☐3	☐4	☐2
c. AVI	☐1	☐1	☐2	☐3	☐4	☐3
d. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐4
Text						
a. ASCII	☐1	☐1	☐2	☐3	☐4	☐1
b. Rich Text Format	☐1	☐1	☐2	☐3	☐4	☐2
c. ANSI	☐1	☐1	☐2	☐3	☐4	☐3
d. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐4

8a. (continued)

Format	A. Formats used?	B. Standard— Is there...				C. Primary type of format used (Check one in each category)
	(Check all that apply)	Agency-mandated standard	Common agency practice	Other	None	
		(Check one for each category)				
Word Processing						
a. Word Perfect	☐1	☐1	☐2	☐3	☐4	☐1
b. Microsoft Word	☐1	☐1	☐2	☐3	☐4	☐2
c. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4	☐3
Other (specify) ______	☐1	☐1	☐2	☐3	☐4	☐1

8b. If you checked "Other" category in Question 8a, Column B, please explain.

____

____

____

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9a. Is this product in an online medium?

Yes .... ☐ (Continue with question 9b) No .... ☐ (Skip to question 10a)

9b. Which of the following online approaches are used?

In **Column A**, indicate which type of approach is used. *(Check all that apply.)*
In **Column B**, if the approach is used, indicate whether it is mandated by the agency, a common practice in the agency although not mandated, other (i.e., not agency-mandated standard or common agency practice, but new and promising and beginning to be used, etc.), **OR** none of these.

Online approaches	**A. Type of on-line tool used**	**B. Standard— Is there...**			
	(Check all that apply)	**Agency-mandated standard**	**Common agency practice**	**Other**	**None**
		(Check one for each category)			
User Interfaces Supported					
a. Netscape *(specify version)* ______	☐1	☐1	☐2	☐3	☐4
b. Internet Explorer *(specify version)* ______	☐1	☐1	☐2	☐3	☐4
c. Telnet	☐1	☐1	☐2	☐3	☐4
d. FTP	☐1	☐1	☐2	☐3	☐4
e. Nongraphical/dial-up shell	☐1	☐1	☐2	☐3	☐4
f. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4
Web Design Approaches					
a. Basic HTML only *(specify version)* ______	☐1	☐1	☐2	☐3	☐4
b. Tables	☐1	☐1	☐2	☐3	☐4
c. Frames	☐1	☐1	☐2	☐3	☐4
d. CGI Scripts	☐1	☐1	☐2	☐3	☐4
e. Use of Javascript	☐1	☐1	☐2	☐3	☐4
f. Use of Java Applets	☐1	☐1	☐2	☐3	☐4
g. XML	☐1	☐1	☐2	☐3	☐4
h. Other *(specify)* ______	☐1	☐1	☐2	☐3	☐4
Bulletin Board Systems (BBS)					
a. Graphical interface/browser	☐1	☐1	☐2	☐3	☐4

9c. If you checked "Other" category in Question 9b, Column B, please explain.

____

____

____

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Searchability of Product

10a. Please indicate whether this product is... *(Check all that apply.)*

a. Included as part of a full-text searchable database with no fielding .... ☐^{1}
b. Indexed by full-text and field .... ☐^{1}
c. Available as "view only" — non-searchable .... ☐^{1}
d. Other *(specify)* ____________ ☐^{1}

10b. This product is officially hosted by... *(Check all that apply.) (Host refers to the primary site where the public can find the product.)*

a. Your agency .... ☐^{1}
b. Another agency (*specify*) ____________ ☐^{1}
c. Contractor .... ☐^{1}
d. Educational institution .... ☐^{1}
e. Other (*specify*) ____________ ☐^{1}

Retrievability

11. This product and any associated software... *(Check all that apply.)*

a. Can be downloaded, saved, and is not subject to any restrictions on use or re-use by the end user .... ☐^{1}
b. Cannot be downloaded, saved, and/or re-used because it is part of a database and does not exist as a distinct product .... ☐^{1}
c. Cannot be downloaded, saved, and/or re-used because it requires proprietary software that is not freely distributable .... ☐^{1}
d. Other *(specify)* ____________ ☐^{1}

C. PLANNED PRODUCT PROFILE (*This next section refers to future plans for the product.*)

Type(s) of Data - Future Plans

12a. Are there any plans to discontinue publication of this product?

Yes .... ☐^{1} *(Continue with question 12b)* No .... ☐^{2} *(Skip to question 13a)*

12b. If yes, please explain. ____________ *(Skip to Section D.)*

13a. What kind of data will this product contain? If product contains more than one type of data, respond for all data types. *(Check one.)*

Retain existing type(s) of data, no changes planned .... ☐^{1} *(Skip to question 14a)*
Retain existing type(s) of data and add items of one or more new types of data *(specify)* ____________ ☐^{2} *(Continue with question 13b)*
____
Discontinue one or more types (*specify*) ____________ ☐^{3} (*Continue with question 13b*)
Change to new type(s) of data *(specify)* ____________
____________ ☐^{4} *(Continue with question 13b)*

13b. Change(s) will occur in the: *(Check all that apply.)*

Short term: within 1 year or less .... ☐^{1}
Medium term: within 2 to 5 years .... ☐^{1}
No changes indicated .... ☐^{1} *(Skip to question 14a)*

If you checked *both* "short term" *and* "medium term" in question 13b, continue with question 13c. Otherwise, skip to question 13d.

13c. If you have short-term and medium-term plans, how are your short-term plans different from your medium-term plans? For example... *(Check all that apply.)*

Short-term plans call for one type of data, but medium-term plans call for a different type of data *(specify)* ____________ ☐1

In the medium term there are plans to combine resources to create a new version of a product using a different type of data that may be different from short-term plans. *(specify)* ____________ ☐1

Other *(specify)* ____________ ☐1

____

____

13d. Do you have any long-term plans (6 or more years) for changing this product to new types of data?

Yes .... ☐1 *(Continue with question 13e)* No............ ☐2 *(Skip to question 14a)*

13e. If yes, please describe them here.

____

____

____

Medium - Future Plans

14a. What kind of medium(s) will this product use? If product is delivered in more than one medium, respond for all mediums. *(Check one.)*

Retain existing medium(s), no changes planned .... ☐1 *(Skip to question 15a)*

Retain existing medium(s) and add items of one or more new types of mediums *(specify)* ____________ ☐2 *(Continue with question 14b)*

Discontinue one or more types (*specify*) ____________ ☐3 *(Continue with question 14b)*

Change to new type(s) of medium *(specify)* ____________ ☐4 *(Continue with question 14b)*

____

____

No agency-mandated medium applies........ ☐5 *(Continue with question 14b)*

14b. Change(s) will occur in the: *(Check all that apply.)*

Short term: within 1 year or less........ ☐1

Medium term: within 2 to 5 years........ ☐1

No changes indicated........ ☐1 *(Skip to question 15a)*

If you checked *both* "short term" *and* "medium term" in question 14b, continue with question 14c. Otherwise, skip to question 14d.

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14c. If you have short-term and medium-term plans, how are your short-term plans different than your medium-term plans? For example… *(Check all that apply.)*

Short-term plans call for one type of medium, but the medium-term plans call for a different type of medium. *(specify)* ______________________________ ☐^{1}

In the medium term there are plans to combine resources to create a new version of a product in a medium that may be different from short-term plans.
(specify) ______________________________ ☐^{1}

Other *(specify)* ______________________________ ☐^{1}

____

____

14d. Do you have any long-term plans (6 or more years) for changing mediums for this product?

Yes .... ☐^{1} *(Continue with question 14e)* No............ ☐^{2} *(Skip to question 15a)*

14e. If yes, please describe them here.

____

____

____

Format - Future Plans

15a. What kind of format(s) will this product contain? If the product uses more than one format, respond for all formats. *(Check one.)*

Same as existing format(s), no changes planned.. ☐^{1} *(Skip to question 16a)*
Retain existing format(s) and add one or more new format types
(specify) ______________________________ ☐^{2} *(Continue with question 15b)*

____

Change to new format type(s) *(specify)* ______________________________ ☐^{3} *(Continue with question 15b)*

____

Discontinue one or more types *(specify)* ______________________________ ☐^{4} *(Continue with question 15b)*

No agency-mandated format applies.. ☐^{5} *(Skip to with question 16a)*

15b. Change(s) will occur in the: *(Check all that apply.)*

Short term: within 1 year or less.. ☐^{1}
Medium term: within 2 to 5 years.. ☐^{1}
No changes indicated.. ☐^{1} *(Skip to question 16a)*

If you checked *both* "short term" *and* "medium term" in question 15b, continue with question 15c. Otherwise, skip to question 15d.

15c. **If you have short-term and medium-term plans, how are your short-term plans different from your medium-term plans? For example...** *(Check all that apply.)*

Short-term plans call for one kind of format, but the medium-term plans call for a different type of format. *(specify)* ________________ ☐ 1

In the medium term there are plans to combine resources to create a new version of a product using a different format that may be different from short-term plans. *(specify)* ________________ ☐ 1

Other *(specify)* ________________ ☐ 1

15d. Do you have any long-term plans (6 or more years) for changing formats for this product?

Yes .... ☐ 1 *(Continue with question 15e)* No .... ☐ 2 *(Skip to question 16a)*

15e. If yes, please describe them here.

____

D. OTHER INFORMATION

Metadata

16a. Is there a metadata record for this product (e.g., GILS, MARC)?

Yes .... ☐ 1 *(Continue with question 16b)* No .... ☐ 2 *(Skip to question 17a)*

16b. If yes, please specify ________________

Permanent Access

17a. Permanent public access to this product is currently provided by: (Check all that apply)

Your agency .... ☐ 1 *(Continue to question 17b)*
Another agency (*specify*) ________________ ☐ 1 *(Continue to question 17b)*
Other (*specify*) ________________ ☐ 1 *(Continue to question 17b)*
No permanent public access provided .... ☐ 1 *(Skip to question 17c)*

17b. How is permanent public access provided? *(specify)* ________________ *(Go to question 18a)*

17c. Are there plans to provide permanent public access in the future for this product?

Yes .... ☐ 1 No .... ☐ 2

Permanent Retention

18a. Is this product scheduled for permanent retention by the National Archives and Records Administration?

Yes .... ☐ 1 *(Continue with question 18b)* No .... ☐ 2 *(Skip to question 19a)*

18b. What is the planned retention period for this product? *(specify)* ________________

Ensuring Authenticity

19a. Does the agency ensure authenticity (official status determination) for this product?

Yes.............. ☐^{1} *(Continue with question 19b)* No.................. ☐^{2} *(Skip to question 20)*

19b. How does the agency attest to authenticity? *(specify)* ____________________

____

Updating/Upgrading Plans

20. How frequently is this product updated or refreshed? *(Check one.)*

Daily .... ☐^{1}
Weekly .... ☐^{2}
Monthly .... ☐^{3}
Annually .... ☐^{4}
Other *(specify)* ____________________ ☐^{5}

21a. Are there plans for changing the product's supporting technology?

Yes.............. ☐^{1} *(Continue with question 21b)* No.................. ☐^{2} *(Skip to question 22a)*

21b. If yes, specify ____________________

____

User Fees

22a. Is a user fee charged for this product? *(Check one.)*

Yes, for all users.......................... ☐^{1} *(Continue with question 22b)*
Yes, for some users...................... ☐^{2} *(Continue with question 22b)*
No.. ☐^{3} *(Skip to question 23a)*

22b. If yes, explain and specify amount of fees. ____________________

____

Licensing

23a. Has the agency licensed commercial search and retrieval software for use with this product?

Yes........... ☐^{1} *(Continue with question 23b)* No........... ☐^{2} *(Skip to question 24a)*

23b. Specify the software vendor and product name. ____________________

23c. Does the agency's license cover use by... *(Check all that apply.)*

a. Agency personnel .... ☐^{1}
b. Agency's primary target constituencies .... ☐^{1}
c. Federal Depository Libraries .... ☐^{1}
d. All libraries .... ☐^{1}
e. Public users .... ☐^{1}
f. Other ____________________ ☐^{1}

Public Domain

24a. Is this product in the public domain? *(Check one.)*

Yes, for the entire product .... ☐¹ *(Continue with question 25)*
Yes, for part of product .... ☐² *(Continue with question 24b)*
No .... ☐³ *(Skip to question 24c)*

24b. If yes for part of product, please explain. ______________________________

24c. If no, has the agency entered into an arrangement with the private sector that would limit use of this information? *(Please briefly explain the arrangement.)*

____

____

____

E. COMMENTS

25. If you wish to comment on matters that you believe are not otherwise adequately covered in this survey, do so here.

____

____

____

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____

____

____

26. **Key person completing this form.**

Contact Name: ____________________________________

Title: ____

Telephone: __________________ Fax: __________________

E-Mail: ____________________

Other person(s) providing responses to questions or assistance in completing this form.

27. Contact Name: ____________________________________

Title: ____

Telephone: __________________ Fax: __________________

E-Mail: ____________________

28. Contact Name: ______________________________

Title: ______________________________

Telephone: ____________________ Fax: ____________________

E-Mail: ____________________

THANK YOU. PLEASE RETURN THIS SURVEY TO:

DENISE GLOVER
WESTAT, ROOM TA2064
1650 RESEARCH BOULEVARD
ROCKVILLE, MD 20850
FAX: 301-517-4134
PHONE: 301-251-2269
gloverd1@westat.com

FOR QUESTIONS ABOUT COMPLETING THE SURVEY, CONTACT DENISE GLOVER.

PLEASE KEEP A COPY OF THIS SURVEY FOR YOUR RECORDS.

Glossary of Terms, Abbreviations, and Acronyms for the Government Information Product Assessment Questionnaire

ASCII—An acronym for American Standard Code for Information Exchange, ASCII is an international standard in which numbers, letters, punctuation marks, symbols, and control codes are assigned numbers from 0 to 127.

AIFF—Short for Audio Interchange File Format, a common format for storing and transmitting sampled sound.

ANSI—Acronym for the American National Standards Institute, a voluntary organization that creates standards for the computer industry. In addition to programming languages, ANSI sets standards for a wide range of technical areas, from electrical specifications to communications protocols.

AU—Short for audio, a common format for sound files on UNIX machines.

AVI—A format developed by Microsoft Corporation for storing video and audio information.

Accessibility—The degree to which the public is able to retrieve or obtain Government information products, either through the Federal Depository Library Program (FDLP) or directly through an electronic information service established and maintained by a Government agency or its authorized agent. The other aspects of accessibility include the degree to which these Government information products are available to the public in a useful format or medium and in a time frame in which the information has utility. In the context of the FDLP, accessibility includes the degree to which Government information is accurately identified and described bibliographically, the information's availability is made known to the public, and technological, social, economic, political and physical barriers to gaining access are minimized.

Authentication—The certification of a Government information product attesting to its legitimate official status. Ensuring the authenticity of a product involves product design, planning, and policy development, as well as technical considerations.

Availability—The degree to which information is physically or electronically obtainable through the intentional or unintentional provision of Government information products to the public. In the context of the FDLP, availability includes the measures taken by Government agencies and the FDLP to include Government information products in the program. Accessibility is meaningless if information is unobtainable from its source.

BBS—Bulletin Board System, an electronic message center. Most bulletin boards serve specific interest groups. They allow users to dial in with a modem, review messages left by others, and leave their own message.

CGI Scripts—Abbreviation for Common Gateway Interface, a specification for transferring information between a World Wide Web server and a CGI program. CGI programs are the most common way for Web servers to interact dynamically with users. An increasingly common way to provide dynamic feedback for Web users is to include scripts or programs that run on the user's machine rather than the Web server.

CD-ROM—Compact Disk-Read Only Memory; an optical disk from which information may be read but not written.

DVD—Short for digital versatile disk or digital video disk, a new type of CD-ROM that holds a minimum of 4.7GB (gigabytes), enough for a full-length movie.

Digital Image—An electronic version of a bit-mapped image of a document or other information format that allows text to be searched at the character level; "digitalize" means the process and accompanying technologies required to effect the conversion from bit-mapped (e.g., a fax) to searchable format.

Dissemination—The act of making Government information products accessible to the public through distribution to depository or program libraries or by using a Government electronic information service.

Electronic Government Information—Information that is organized, stored, and disseminated using electronic or optical mediums as opposed to paper-based or microfiche-based mediums.

FTP—An acronym for of File Transfer Protocol, the protocol (agreed-upon format) used on the Internet for sending files.

Format—The manner in which data, documents, or literature are organized, structured, named and described, classified, and arranged. For example, full narrative texts in English language could be in the following forms: books or articles, abstracts of text used in reviews and summaries, indexes and catalogs, maps, photographs, drawings, sound recordings, video tapes, bibliographies, and statistical and other numeric kinds of tabulations. A screen format is the layout of fields on the screen. A report format is the layout of the printed page including print columns and page headers and footers. A record format is the layout of fields within a record. A file or database format is the layout of fields and records within a data file, layout codes within a word processing document, or display lists (vector) or bit maps (raster) within a graphics file. The term is sometimes used to refer to the way digital data is encoded or inscribed. Archivists used the terms "genre" or "form of material" to cover what is meant by format in this context.

Frames—A feature supported by most modern Web browsers that enables the Web author to divide the browser display area into two or more sections (frames). The contents of each frame are taken from a different Web page.

GIF—Pronounced jiff or giff (hard g), it is short for graphics interchange format, a bit-mapped graphics. GIF supports color and various resolutions. It also includes data compression, making it especially effective for scanned photos.

GILS—Short for Government Information Locator Service. A metadata tool for identifying, locating, and describing publicly available Federal information resources, including electronic information resources.

Gopher—A method of making menus of material available over the Internet. Gopher pre-dates the World Wide Web for organizing and displaying files on Internet servers.

Government Electronic Information Service—The system or method by which a component of the Government, or its authorized agent, disseminates Government information products to the public via such means as a network or use of CD-ROMs at a kiosk.

Government Information—Refers to information, regardless of form, medium, or format, that is created or compiled by employees of a component of the Government, or at Government expense, or as required by law. Government information as used here does *not* include information for official use only, information classified for reasons of national security, or information used strictly for administrative or operational purposes (e.g., not of public interest or educational value).

Government Information Product—A Government publication or other work of the United States Government conveyed in a tangible physical medium such as a book or CD-ROM, or disseminated through an electronic Government information service established and maintained by a Government agency or its authorized agent.

Graphical User Interface—A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use.

HTML (HyperText Markup Language)—The authoring language used to create documents on the World Wide Web.

HTTP—Short for HyperText Transfer Protocol, the underlying protocol used by the World Wide Web. HTTP defines how messages are formatted and transmitted and what actions Web servers and browsers should take in response to various commands.

Information Intermediary—Refers to any person, institution, or mechanism that adds value to information products so that they are more useful to information users. Intermediaries perform their work at the middle information life cycle stages—that is, between information creation and information disposition or destruction. Federal libraries and information centers are examples of intermediaries.

Information Life Cycle—The various stages through which information passes, including creation, production or collection, review and editing, organization and reorganization, packaging, storage, search and retrieval, communication and re-communication, dissemination, disposition, archiving, and destruction.

JPEG—Joint Photographic Experts Group (JPEG) is an image compression format used to transfer color photographs and images over computer networks.

Java Applets—The use of small Java programs. Java Applets allows Web pages to include functions such as animations, calculators, and other fancy tricks.

Javascript—A scripting language developed by Netscape to enable Web authors to design interactive sites.

MARC—Short for machine-reading cataloguing. The USMARC formats are standards for the representation and communication of bibliographic and related information in machine-readable form. The Library of Congress, in consultation with various user communities, maintains USMARC formats.

MPEG—Short for Moving Picture Experts Group, a working group of ISO. MPEG generally produces high-quality video.

Medium—The physical, chemical, or biological substrate used to create, organize, store, search for, retrieve, disseminate, or permanently archive data, documents, or literature including, for example, paper, microforms, fiber optic cables, photographic film, CD-ROM, floppy diskettes, magnetic storage devices, sound recordings, and videotape.

Metadata—Metadata is data about data. Metadata describes how and when and by whom a particular set of data was collected and how the data are formatted. These data can be collections or individual instances of objects or documents, Internet resources, etc.

Migration—The transfer of an information product from one hardware type, software package, system, network, format, or medium to another. The transfer of an information product from a pre-electronic medium such as paper or microform to an electronic medium such as CD-ROM is an example of migration.

PDF—Short for Portable Document Format. A file format developed by Adobe Systems, PDF captures formatting information from a variety of desktop publishing applications, making it possible to send formatted documents and have them appear on the recipient's monitor or printer as they were intended.

Permanent Public Access—The indefinite, continuing accessibility of Government information products by the public including the policies, programs, formats, mediums, and standards used. Simply because data such as weather and tide information, lists of Government contractors, editions of annual reports, and statistical series are continuously updated with more current information does not necessarily mean that provision should not be made for retaining (making permanently accessible) the replaced information. Care should be exercised in this regard, however, to ensure no harm is done to the public by making available out-of-date information.

Preferred Medium or Format Standard—A medium or format standard that may not be agency mandated but is either common agency practice or applies to a new or promising product format or medium.

Public Domain—A term of American copyright law referring to works that are not copyright protected; free for all to use without permission.

Refreshing—A technical term meaning the manner in which information mediums and technologies are periodically reassessed and upgraded to ensure that they are not becoming obsolete, thereby risking the loss of information and the compromising of Permanent Public Access policies. The term is also sometimes applied to formats and standards (not just mediums) that are in danger of becoming obsolete and need to be replaced or upgraded.

Rich Text Format (RTF)—A standard for specifying formatting of documents. RTF files are actually ASCII files with special commands to indicate formatting information, such as fonts and margins.

SGML—Short for Standard Generalized Markup Language, SGML is a system for organizing and tagging elements of a document. SGML was developed and standardized by the International Organization for Standards (ISO) in 1986.

Standard—An agreed-upon authoritative convention, whether formal or informal, whether official or unofficial, whether de facto or de jure, by which information products are created, produced, formatted, published, stored, communicated, and moved through the remainder of the stages of the information life cycle. Standards (and the more informal concept and term "guidelines") minimize incompatibility and interoperability problems when an information sender tries to move data, documents, or literature into and out of several different formats and mediums to a receiver. Standards may be set by formal national or international standard-setting bodies, or by agencies, or by groups of users informally by common consent.

TIFF—The acronym for Tagged Image File Format, a graphic file format developed by Aldus and Microsoft.

Telnet—A terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on a user's computer and connects his/her PC to a server on the network. This enables users to control the server and communicate with other servers on the network.

Type of Data—The general nature of the information content of a Government information product and how it is arranged, structured, and presented for ease of handling in a medium. Some examples include textual data, graphical data, spatial data, numerical data, etc.

WAIS—Short for Wide Area Information Server. A distributed information service that offers simple natural language input, indexed searching for information retrieval, and a relevance feedback mechanism. It has an easy-to-use interface that searches all documents relative to your query, ranks them, and makes them available to retrieve.

WAV—The format for storing sound in files developed jointly for Microsoft and IBM.

WORM—Short for write once, read many, an optical disk technology that allows one to write data onto a disk just once.

World Wide Web (WWW)—WWW is a system of Internet servers that support specially formatted documents. The documents are formatted in a language called HTML (HyperText Markup Language) that supports links to other documents, as well as graphics, audio, and video files.

XML—Short for eXtensible Markup Language. XML is a pared-down version of SGML, designed especially for Web documents. It enables designers to create their own customized tags to provide functionality not available with HTML.

Appendix F

Site Visits to Three Federal Depository Libraries and Interview Questions

Site Visits to Three Federal Depository Libraries

Libraries Visited	**Interviewees**
McKeldin Library University of Maryland College Park, Maryland *(Regional Federal Depository Library)* Date visited: July 30, 1998	Linda Spitzer, Acting Head Government Documents and Maps
Washington College of Law Library American University Washington, D.C. *(Selective Federal Depository Library)* Date visited: August 11, 1998	Joanne Zich, Chief Government Documents and Media Services Patrick Kehoe, Library Director
Rockville Regional Library Montgomery County Public Libraries Rockville, Maryland *(Selective Federal Depository Library)* Date visited: September 9, 1998	Judith Horowitz, Documents Coordinator

Interview Questions for Site Visits to Federal Depository Libraries

Date of Site Visit ____________________

Contact Name ____

Title ____

Library Name ____

Address ____

____

Phone ____________________ Fax ____________________

Email ____________________

Background Information

1. How long have you been in your current position?
2. Describe range of duties related to Government documents?
3. How long has this institution been a Federal depository library?
4. Who are your primary and secondary users of Government information products?
5. Do you know what mediums patrons tend to be more comfortable using? (e.g., paper, CD-ROMs, Internet, diskettes or does it matter?) What about what formats they prefer to use? (text and graphics)

Accessibility for Users

6. **What key issues or concerns do users have about accessing Government electronic information products? Have you conducted any user surveys or focus groups to determine the needs of patrons who use Government information products and services?**

If they do not mention these issues, probe for them:

- Bibliographic and findings tools to identify and describe online and electronic Government products
- Problems with changing URLs
- Charging user fees (specify types of fees: printing costs, fees to access products)
- Copyright restrictions (can you give an example?)
- Downloading large files from the Internet
- User guides and documentation
- Providing reference and other public services to people with disabilities
- Other (specify)

Concerns about Services and Resources

7. What are *your* concerns about providing access to electronic Government information products?

If they do not mention, probe for:

- Are you notified that a product is available through electronic and online storage? If yes, how?
- Are you currently notified that a product has been removed from the Internet? If so, how?
- Is there a better way to inform the depository libraries of additions, discontinued products, or modified products? If so, what are your recommendations?
- What about retention and preservation of Government electronic information products in the future?

(Hardware and software issues to probe for:)

- What do you think about the latest minimum recommended specifications for public access workstations?

- Is your library able to keep pace with these minimum specifications?

- Do the current recommended minimum specifications accommodate current online and electronic Government information products?

- Other hardware/software issues

Recommendations for Improving Access

8. Within the last three years, have you or your predecessor conducted any formal or informal studies (i.e., surveys, observations) of your users to identify specific needs or concerns they have in using Government electronic information products?

9. If yes, could you please briefly describe what you found and what, if anything, you did to make adjustments in your services or resources?

10. If you were given a pot of money (say $25,000) to improve access to Government electronic information products, how would you spend the monies, in priority order?

11. If you had unlimited resources, what would you do to improve public access to online and electronic Government information products?

12. Are there other issues or concerns you would like to share with us about the transition to a more electronic FDLP that we haven't already covered?

NCLIS Assessment of Electronic Government Information Products

Summary Notes for Site Visits to Three Depository Libraries

1. What mediums do patrons tend to be most comfortable using? (e.g., paper, CD-ROMs, Internet, diskettes)?

- **Paper and microfiche; Internet a close second.**
- **CD-ROM is the least preferred medium (by librarians and patrons).**

2. What key issues or concerns do *users* have about accessing Government electronic information products?

Accessing Electronic Resources

All three librarians expressed major concerns about the problems in using Government-produced CD-ROMs that are not standardized:

- **The search and retrieval software is different for each CD, often they come with no installation instructions or user documentation, and they are not user-friendly.**
- **Librarians must call in a computer technician to load the CDs and show librarians or users how to access the information.**
- **Two of the three libraries have significantly reduced the number of CD-ROM titles they select because of the above-mentioned problem. The third librarian indicated that they have a ton of CD-ROMs that are not used due to the problems with loading, accessing, and using them.**

Users are still intimidated by electronic mediums and computers. Most users ask librarians to help them search for materials on the web.

Since most Government websites only contain the most recent information, all librarians expressed concerns about users accessing retrospective Government information on the web. Two selective depository librarians often send their patrons to the regional depository to use their paper files for some historical Government information.

3. What key library issues or concerns do *you* have about providing access to electronic Government information products?

Charging Fees

Two of the three libraries do not currently charge fees for printing materials from the Internet or CD-ROMs. One library was planning to change its policy beginning in September 1998 because it cannot continue to fund this expense. The second library is also contemplating changing its policy after installing the next generation computer system.

Hardware issues

- **Patrons expect the library to have state-of-the-art equipment and expect librarians to know how to use it. Although all librarians felt their libraries had state-of-the-art equipment, they were concerned about how they could meet rising user expectations for the "best" computer hardware.**
- **Users do not have access to enough workstations, so the libraries must impose a time limit on computer use.**
- **Costs of hardware, telecommunications, and access to electronic information have increased dramatically. For example, one library reported spending $60,000 on these services and equipment 10 years ago; now they spend about $270,000 on hardware including maintenance agreements.**

Training Issues

All librarians expressed concerns about finding time and money to train librarians and staff, especially on the use of CD-ROM products, but also on downloading files, effectively searching the Internet for Government information, and creating and maintaining web pages.

4. If you were given a pot of money (e.g., $25,000) to improve access to Government electronic information products, how would you spend the monies, in priority order?

- **New CD-ROM server; an 18-disk CD changer (3 responses).**
- **More staff training (2 responses).**

5. If you had unlimited resources, what would you do to improve public access to online and electronic Government information products?

- **Form partnerships with GPO and a Government agency to put some retrospective Government information on their server so it will be accessible to users in the future (2 responses).**
- **Provide outreach to public schools, community centers, etc., to educate students and adults about the wide variety of valuable information available from the Federal Government (2 responses).**

Other Comments:

One librarian expressed strong feelings about the need for Congress to provide long-term financial support to Federal depository libraries so they can provide permanent public access to digital media.

Appendix G

Electronic Government Information Products Assessment Agency Meetings Held and Discussion Questions

Electronic Government Information Products Assessment
Agency Meetings Held

Agency	Number of Attendees
Department of Health and Human Services Meeting Date: September 14, 1998	10
Supreme Court of the United States Meeting Date: September 15, 1998	11
Environmental Protection Agency Meeting Date: September 17, 1998	12
Department of Education Meeting Date: September 22, 1998	5
Department of Commerce Meeting Date: September 23, 1998	8
National Archives and Records Administration Meeting Date: September 24, 1998	7

Electronic Government Information Products Assessment
Agency Meeting Discussion Questions

1. Does your agency have preferred medium and format standards for Government electronic information products at the permanent public accessibility stage? If so, what are the top three? What factors does your agency consider in determining preferred standards (e.g., user needs, agency's dissemination requirements or policies, cost, security etc.)? What about specific standards for CD-ROMs as they relate to user documentation, installation, search software, etc.?

2. Can you give us any examples of particularly innovative and creative product formats, mediums and/or online approaches? We have in mind formats, mediums, or online approaches that may well point to the wave of the future, not only for a particular product but also for other kinds of products, yet is neither an agency-mandated standard nor even a common agency practice.

3. Is there any difference between your agency's preferences for mediums and formats as opposed to the preferences of intermediary distributors? If so, what are those differences, and why are the two preferences different?

4. Has your agency involved external user groups in assessing the value and effectiveness of the dissemination of Government electronic information products? If so, are there formats and mediums that seem particularly appropriate for public dissemination to users who may be economically, technically, or physically disadvantaged?

5. Does your agency follow any internally or externally prescribed guidelines for the presentation and organization of products in online formats? If so, what are they (e.g., WWW Federal Consortium, FIPS Guidelines, agency or departmental publication specifications or guidelines)?

6. Has your agency undertaken any kind of cost benefit analyses for producing or creating products in preferred or emerging formats, mediums, or online approaches for distribution to the FDLP? If so, which ones appear to be the most cost-effective?

7. What factors does your agency consider in deciding to create or retain products in more than one medium? Is this a common agency practice?

8. Are there trends with respect to migrating specific families of products from pre-electronic mediums to electronic mediums or formats? For example, are loose-leaf publications, training manuals, annual reports, conference proceedings, newsletters, rules and regulations, scientific journals, etc., targeted for migration to a particular medium? If so, which mediums and formats are used for specific families of products?

9. Has your agency identified any medium and format standards that seem particularly appropriate for use throughout a product's entire information life cycle, not just at one stage (i.e., creation, storage and retrieval, communication and dissemination, archiving and disposition) for electronic Government information products? If so, which ones?

10. How do you determine whether a product should be made permanently publicly accessible when you create or produce it? If so, what criteria do you use to determine which products will be permanently publicly accessible? Can you give us any examples of how you ensure permanent public accessibility for a given product?

11. Does your agency routinely provide locator tools (e.g., GILS or specific agency locators) to enhance access to information sources and services available to external users and customers? If so, is this an official policy, common agency practice, or both?

12. Are there trends for facilitating public access to your agency products by including them in broad electronic Federal Government information services such as GPO Access, LOC Thomas, and NTIS FedWorld? Are you using any particular guidelines to facilitate that decision, and if so, what are they?

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Summary of Responses to Agency Meeting Questions

1. Does your agency have preferred medium and format standards for Government electronic information products at the permanent public accessibility stage? If so, what are the top three? What factors does your agency consider in determining preferred standards.

Agencies reported using the following electronic mediums most often: CD-ROM, Internet, and Bulletin Board System (BBS). The most frequently used formats include:

- **HTML, PDF, ASCII**
- **TIFF, GIF, JPEG**
- **Lotus/Domino**

In determining medium and format standards, agencies consider the amount of information or files used, the timeliness of the information (e.g., more recent products or publications often placed on the web), and user needs for easy and quick access to information. For example, some agencies are looking to Windows as an interface for CD-ROM products since the public is used to seeing and using Windows.

2. Do you have any examples of particularly innovative and creative product formats, mediums, and/or online approaches? We have in mind formats, mediums or online approaches that may well point to the wave of the future for not only a particular product but also for other kinds of products, yet is neither an agency-mandated standard nor even a common agency practice.

Almost all the agencies interviewed are exploring a wide range of innovative and creative format, medium, and web applications. Below is a sampling of some of the interesting online approaches and formats used by the agencies interviewed.

- **Data warehousing: Taking information not previously publicly accessible and integrating it into an online format. The format used is an Oracle database using SQL to query.**
- **Interactive Geographic Information System (GIS). Provide mapping capability through GIS combined with regulatory information to create dynamic maps.**
- **Online catalog of all products on the agency's website, using Oracle with a ColdFusion interface with their search engine (Verity).**
- **Creating user guides for CD-ROMs as pop-up HELP or short Read-Me files so users will be more inclined to use HELP.**
- **Live "real-time" web casting of selected speeches. Format: RealPlayer software, available free from the web.**
- **Radio news broadcast news service. Provides daily radio sound-bits for news reports. Format: RealAudio RealPlayer software and WAV file format for downloading.**

- **Real-time forecasting of air pollution levels for 22 states from one site. Format: animated GIFs created by nonproprietary software designed by computer center in North Carolina.**

- **Multimedia CD-ROM (i.e., art, music, animation, film, and video).**

- **Searchable electronic inventory of all proposals funded over the last 30 years so the agency can analyze its own information and make it available to others. Format: legacy database put into WAV database using HTML on the fly.**

- **Documents stored in TIFF format for image and textual data. As customers request documents, the agency converts them to PDF so customer can download.**

3. Is there any difference between your agency's preferences for mediums and formats as opposed to the preferences of intermediary distributors?

Generally, agencies indicated that intermediary distributors do not find agency formats to be restrictive. However, the distributors often modify formats (e.g., from HTML to ASCII, or reformat data using compression technology).

4. Has your agency involved external user groups in assessing the value and effectiveness of the dissemination of electronic Government information products? If so, are there formats and mediums that seem particularly appropriate for public dissemination to users who may be economically, technically, or physically disadvantaged?

Yes, all agencies reported that they involve users in assessing some aspects of their products, per OMB Circular A-130. Examples include the following:

Focus groups are used to:

- **Determine the capability of new products (e.g., Can you use the same technology for the newer version of a product? Do users lose anything (e.g., Macros) when they update a product?).**

- **Determine ways to create more user-friendly CD-ROMs that resulted in the agency establishing three principles for producing CD-ROMs: make them simple to use, intuitive, and self-tutorial.**

- **Determine how information is presented on the web (Alpha and Beta testing).**

- **Solicit feedback on usability and accessibility; focus groups conducted with tribal Governments, teachers, librarians, children, etc.**

- **Learn about expectations, behavior, and problems in accessing products on the web experienced by the elderly.**

- **Interview and videotape users to assist agency redesign of website.**

- **Solicit ideas from educators at professional conferences about topics that they would like to see presented in online products.**

For technologically or economically disadvantaged customers, one agency sub-unit faxes free copies of information printed from the CD–ROM or the Internet. Another agency sub-unit reported they try to reach economically disadvantaged customers by training rural community leaders in isolated areas on ways to access health-related information on the web .

5. Does your agency follow any internally or externally prescribed guidelines for the presentation and organization of products in online formats? If so, what are they (e.g., WWW Federal Consortium, FIPS Guidelines, agency or departmental publication specifications or guidelines)?

Most agencies have developed guidelines or "best practices" for presentation of products in online formats. However, several agency representatives indicated that the real challenge is in convincing agency staff to comply with the guidelines. The following agencies provided information on their guidelines:

1. **NARA: NARA Guidelines for Digitizing Archival Materials for Electronic Access (not to be considered a standard for digital imaging).** (http://www.nara.gov/nara/vision/eap/eapspec.html)

2. **Federal Web Consortium's guidelines are based on Dept. of Education's guidelines** (http://www.ed.gov/internal/wwwstds.html). **One sub-unit, NCES, also has developed guidelines.**

3. **EPA used WWW Federal Consortium guidelines** (http://www.dtic.mil/staff/cthomps/guidelines/) **to develop their own guidelines for presentation.**

4. **Census uses a process and structure for submitting items for the web, but it is not yet formalized.**

5. **No departmental guidelines exist for the fifth agency, but most sub-units have some kind of guidelines for presentation and organization, although they might vary among sub-units.**

6. Has your agency undertaken any kind of cost-benefit analyses for producing or creating products in preferred or emerging formats, mediums, or online approaches for distribution to the FDLP? If so, which ones appear to be the most cost-effective?

Generally, agencies have not conducted a formal cost-benefit analysis. Agency representatives made the following observations, however:

- **One agency sub-unit tracks the number of customers who purchase a product and compares this amount against the cost of producing it. They discontinued a product on CD-ROM because so few people could afford to buy it.**
- **The web reduces administrative costs for printing and mailing hard copies of publications.**
- **One agency reported a dramatic decrease (by 25,000) in the number of publications requested under the Freedom of Information Act due to the web.**
- **One agency tracks the number of people that a product can potentially reach (e.g., they sell 2,000 paper copies through GPO, but have 9,000 hits on the website).**
- **One agency reported that they order fewer publications to fill customer requests as a result of the web.**

7. What factors does your agency consider in deciding to create or retain products in more than one medium? Is this a common agency practice?

Agency representatives reported that they consider a variety of factors in creating and retaining products in more than one medium, although they did not characterize these factors as a common agency practice. Several agencies reported that these issues are considered on a case-by-case basis or by the individual program unit. The key factors considered are:

1. **Budget (e.g., some products in CD-ROM are too expensive to make available to a small audience).**
2. **Cost (e.g., cost to print and mail product as opposed to make it available on the web).**
3. **Needs of technologically disadvantaged users (e.g., one agency maintains its Fax on Demand service, even though it is not cost-effective).**
4. **Accessibility (e.g., one sub-unit stores products in TIFF image format so they can produce them in whatever medium of output customers want).**
5. **Size of audience (e.g., agencies survey users and use web software to track use).**
6. **Number of queries or type of customer requests. Customers will often request a publication or product in more than one medium.**

7. **Regulatory requirements. Some products must be produced in paper regardless of whatever other medium it is produced in.**

8. **Type of product/publication (e.g., searchable databases are only suitable for electronic mediums).**

8. Are there trends with respect to migrating specific families of products (e.g., loose-leaf publications, training manuals, annual reports, conference proceedings) from pre-electronic mediums to electronic mediums or formats? If so, which mediums and formats are used for specific families of products?

The general trend reported by agency representatives is to migrate more products to the web, especially recent ones. Some examples include:

- **Conference proceedings and presentations online in PowerPoint or PDF.**
- **Newsletters in HTML.**
- **Training manuals and annual reports in HTML and PDF.**
- **Information for records managers are posted to Gopher, but will move to the agency's website in 1999.**

9. Has your agency identified any medium and format standards that seem particularly appropriate for use throughout a product's entire information life cycle, not just at one stage (i.e., creation, storage and retrieval, communication and dissemination, archiving and disposition) for electronic Government information products? If so, which ones?

Most agencies have either not addressed this issue of information life cycle or are struggling with it.

- **NARA has established medium and format standards for transferring permanent records to the National Archives in 36CFR 1228.188.**
- **One sub-unit reporting putting documents in ASCII, but using Oracle for database management.**
- **One sub-unit is beginning to think about standardization for some documents. They draft documents in Lotus Notes (GroupWare) and publish final document in another database that goes onto the web. They use Rich Text Format (RTF) to accommodate images and text.**
- **Several sub-units indicated that the technology is changing so rapidly they cannot establish standards.**

10. How do you determine whether a product should be made permanently publicly accessible when you create or produce it? If so, what criteria do you use to determine which products will be permanently publicly accessible? Can you give us any examples of how you ensure permanent public accessibility for a given product?

No agencies could provide responses to this question or indicated that this issue has not been resolved. Some observations:

- **One sub-unit is committed to making paper and CD-ROM-based products available for permanent access, but they are less clear about their commitment to products on the Internet.**

- **Some agency representatives did not understand the differences between permanent public access and permanent records.**

(The experts interviewed for this study provide some insight into the reasons that agencies are not addressing this issue.)

11. Does your agency routinely provide locator tools (e.g., GILS or specific agency locators) to enhance access to information sources and services available to external users and customers? If so, is this an official policy, common agency practice, or both?

Most agencies indicated that the web format supercedes the original GILS concept. However, most agencies have their own locators:

- **NTIS has a catalog and maintains some GILS records.**

- **EPA's website has a GILS record and they put all Internet products on one server so there is one access point for all their products.**

- **Development and maintenance of GILS records is official agency policy for NARA.**

12. Are there trends for facilitating public access to your agency products by including them in broad electronic Federal Government information services such as GPO Access, LOC Thomas, and NTIS FedWorld? Are you using any particular guidelines to facilitate that decision, and, if so, what are they?

About half of the agencies use GPO Access or NTIS FedWorld. The other half relies more heavily on individual agency websites with good links.

Appendix H

Assessment of Electronic Government Information Products
List of Expert Interviews and Interview Questions

Assessment of Electronic Government Information Products
List of Expert Interviews and Discussion Questions

Interviewees	**Date of Telephone Interview**
Jerry Malitz, Webmaster National Center for Education Statistics U.S. Department of Education Washington, D.C.	October 27, 1998
Linda Wallace, Chief Electronic Information Services Internal Revenue Service Washington, D.C.	October 27, 1998
Evelyn Frangakis, Preservation Officer National Agricultural Library U.S. Department of Agriculture Beltsville, Maryland	November 10, 1998
Abby Smith, Director of Programs Council on Library and Information Resources Washington, D.C.	November 10, 1998
John Bertot, Associate Professor State University of New York at Albany Albany, New York	November 18, 1998
Charles McClure, Distinguished Professor, School of Information Studies Syracuse University Syracuse, New York	November 24, 1998

Interview Questions for Webmasters:
Jerry Malitz and Linda Wallace
(October 27, 1998)

Role of Webmaster

1. How long have you been in your current position as webmaster? When and how was the position created? Were you the first webmaster in your agency? How does the position reside administratively in the structure of your agency? What office or unit do you report to?

2. Please describe your current job responsibilities and duties. What portion of the following skills, experience, and knowledge do you use to perform your job: technical, administrative, analytical, program, other?

3. Is there a formal or informal structure for working with staff and administrators in other departments or units (e.g., program staff, IT, publications, public relations, records managers, librarians, etc.)? If yes, please describe how you interact with them?

4. What do you envision as the future role of the webmaster in Federal Government agencies? Do you see your role as being very different in 5 years than it is now? How?

Format Standards and Public Accessibility

5. Please describe the website development process in your agency from the time you receive or generate requests through design, development, evaluation, testing, and implementation, etc.

6. Has your agency developed policies or guidelines including format standards to ensure technical consistency in the development of web products that are intended for public dissemination? What are the most frequently used file formats and why? Can you identify any formats you plan to use in the future?

7. Are there limitations or specific designations of software tools that may be used to develop and implement web pages or sites? What standards are applied to configuration control and arrangement of web-based applications? Do you have a direct role in determining these standards, or are they developed at an agency or departmental level?

8. Are there general security standards applied to the availability or distribution of web-based information? What is your role in determining or implementing these standards? Which software products do you use to implement these standards?

9. How do you evaluate the effectiveness of your websites? Who is involved in the process? What methodology and criteria have you or others used to evaluate websites?

10. Has your agency discussed the concept of permanent public accessibility as it relates to Government electronic information products intended for public dissemination? How is your agency addressing the concerns of librarians, GPO, and others for ensuring permanent public accessibility for electronic Government information products?

11. What consideration are you giving to creating a metadata record for your information resources or services on the web (e.g., GILS, MARC, or specific agency locators)?

Cost Analysis

12. Linda, we know you have collected data on the comparative costs of delivering services to customers via different delivery mechanisms such as mail, e-mail, Fax on Demand, kiosks, Internet, telephone, walk-in, CD-ROM, etc. What have you learned about the costs of delivering services to customers using these different systems? Which delivery mechanisms are the most cost-effective for what types of services?

NCLIS Assessment of Electronic Government Information Products

Summary Notes from Interview with Linda Wallace (IRS) and Jerry Malitz (NCES)

1. Please describe your current job responsibilities and duties.

WALLACE (IRS):

(Wallace was a telecommunications expert and technical advisor to CIO when IRS asked her to be webmaster. She also holds the title of Chief, Electronic Information Services. She is responsible for all electronic information products including Fax on Demand, Internet, e-mail, etc.)

Wallace's three major areas are content, applications, and development. Her office:

- **Generates new services and authorware, including creating automated filters and templates through core knowledge repository.**
- **Participated in the development of SGML format (standard format for IRS since 1970s).**
- **Interacts with customers to automate a standard way to build a core knowledge repository. Repository contains automated templates and filters to generate media output to serve customers via Internet, Fax on Demand, CD-ROM, bulletin board system, telephone, or mail requests.**

    a. **Core repository can satisfy 95 percent of requests using 86 different variables or attributes that are indexed so everything is searchable. All documents include individual catalog and document numbers.**

    b. **Documents are always authored in SGML and can automatically be converted into a different format or posted on the web, BBS, etc., in 10-12 hours to fill customer requests.**

    c. **Filters and templates are solely by this group. They also track history of a document.**

    d. **A knowledge base is being built by developing a database of frequently asked questions.**

    e. **They use ICON tagging to provide accessibility to the visually impaired. All IRS documents are ADA-compliant, online searchable, and downloadable.**

MALITZ (NCES):

As Technology Outreach Officer for NCES, Malitz services state education agencies, school districts, etc.

a. **Each one of NCES's 30 programs has a web publisher and a web liaison.**

b. **Contractors actually prepare materials for the web once program officer has approved content.**

c. **Malitz sets standards, guidelines, and procedures for web publisher to follow.**

d. **Web publisher in program area develops website on a separate development server; Malitz reviews and makes technical changes to ensure that the site meets minimum standards and guidelines.**

e. **Sometimes, he develops a new application for others to use (e.g., NEWS FLASH subscription service featuring daily breaking news from the Department of Education).**

2. Do you have a formal or informal structure for working with staff and administrators in other departments or units (e.g., program staff, IT, publications, public relations, records managers, librarians, etc.)? If yes, please describe how you interact with them.

WALLACE:

Wallace deals with high-level senior executives, reviewing their business plans, problems, and goals, then recommending solutions that include productivity measures, production rates, and cost per person. In one case, she recommended a business CD-ROM.

- **Establishes strong liaisons with industry (has marketing person on staff). They receive one-half of funding from industry to support business projects that benefit industry and IRS customers.**
- **Established various delivery service programs: Internet in '96, Fax on Demand in '96, CD-ROM in '95, BBS a while ago.**

MALITZ

- **Each one of NCES's 30 programs has a web publisher and a web liaison.**
- **Contractors prepare materials for the web once content has been approved by the program officer.**
- **Web publisher in program area develops web site on a separate development server; when finished, Malitz reviews and makes technical changes to ensure that site meets minimum standards and guidelines.**
- **Sometimes, Malitz develops a new application for others to use such as the NEWS FLASH subscription service that features daily breaking news from the Department of Education.**
- **Malitz's work is divided fairly evenly between technical, administrative, analytical, and program areas.**

3. What do you envision as the future role of the webmaster in Federal Government agencies? How you see your role as in 5 years as compared to now?

MALITZ:

The role of webmaster will be completely different. In the future, he/she will have more of a coordinating function and will set policies and procedures. The program staff will be forced to do their own work on the web, just as they now do their own word processing and e-mail.

WALLACE:

The role of the webmaster will be that of an enabler for business units with everyone involved. There will be more of a focus on multimedia (e.g., BBS, CD-ROM, Fax on Demand) and not just the Internet.

4. Please describe the website development process in your agency from the time you receive or generate requests through design, development, evaluation, testing, and implementation, etc.

WALLACE:

Her unit receives and generates requests. Requests from the core repository can fit into an existing template filter application.

a. **Staff and contractors conduct testing and implementation.**

b. **Second year after web in operation, requests for paper copies of forms dropped by 50 percent.**

c. **Provide hidden codes to track where returns come from: fax, Internet, libraries, phone requests, etc.**

d. **Evaluation includes a simple three-question customer service survey on content: did you get what you needed, where would you have gone if not here? They build evaluation into every step of the process.**

e. **A panel of experts measures the effectiveness of their websites. Also, they have partnered with schools to recruit instructors and students to review site before they go "live."**

f. **One person reviews all e-mail messages that contain feedback on website; use automated sorters by key words to batch the type of feedback received.**

MALITZ:

Before website, customers were very specialized. Most were data file users. After they created their website, their customer based increased tremendously. Now the culture is different and NCES is dealing with questions from the general public.

a. **NCES uses a developmental server but is planning to implement a Point-to-Point Tunnel Protocol (PPTP) so the developmental server is behind the firewall and no longer open to everyone. Only web publishers and contractors will have access to server.**

b. **Malitz never reviews content; that is done by individual program staff.**

c. **NCES conducts customer surveys of users to develop and refine sites.**

d. **Malitz does database development and tests multiple browsers. NCES is UNIX-based; rest of ED is Windows-based.**

5. Has your agency developed policies or guidelines including format standards to ensure technical consistency in the development of web products that are intended for public dissemination? What are the most frequently used file formats and why? Can you identify any formats you plan to use in the future?

WALLACE:

Formats most frequently used are SGML, PDF, HTML, and Postscript, respectively. They will add XML soon. They train authors to use SGML. SGML is "intelligent" data that can automatically generate other formats. Most agencies do not use SGML because it is harder to author in. Wallace's agency uses it because it is much more robust, and it is easy to change a document format to match customer needs (e.g., tax law information for consumer and for lawyers).

MALITZ:

NCES uses PDF, then HTML (optional). They rarely put entire publication in HTML.

6. Are there limitations or specific designations of software tools that may be used to develop and implement web pages or sites? What standards are applied to configuration control and arrangement of web-based applications? Do you have a direct role in determining these standards, or are they developed at an agency or departmental level?

WALLACE:

Their focus is knowledge-based, not web application. Her department sets the standards. They use C++ and Perl.

MALITZ:

All publications are in PDF; all else in HTML. They use SQL databases to support the web. Malitz has a direct role in determining standards.

7. Are there general security standards applied to the availability or distribution of web-based information? What is your role in determining or implementing these standards? Which software products do you use to implement these standards?

WALLACE:

The IRS uses an automated redacting scheme; with one keystroke, they can create a public and specialized version of the same document. They apply all security standards from the Government, including SSA, Treasury, etc. They cannot reveal security software.

MALITZ:

Only a few people who use developmental server have access; all must be registered users. NCES uses PPTP encryption for the developmental server.

8. Has your agency discussed the concept of permanent public accessibility to electronic Government information products intended for public dissemination? How is your agency addressing the concerns of librarians, GPO, and others for ensuring permanent public accessibility for electronic Government information products?

WALLACE:

All tax forms, instructions, publications etc., are available for 5-6 years online. The core knowledge repository maintains material for 14 years, but they do not keep every application back that far. IRS can fill e-mail requests for information or forms from earlier years. In addition, they provide GOLD CARD SERVICES for librarians. Librarians have their own page, track orders, and talk "live" with one another. IRS gives their orders priority.

MALITZ:

The issue of permanent public accessibility is currently under discussion.

9. What consideration are you giving to creating a metadata record for your information resources or services on the web? (e.g., GILS, MARC or specific agency locators)?

WALLACE:

GILS records are a subset of the 86 variables that go into the core knowledge repository.

MALITZ:

The Dept. of Education has an agency locator with total search capability. They also participate in FedStats, White House Briefing Room, etc.

10. Linda, we know you have collected data on the comparative costs of delivering services to customers via different delivery mechanisms such as mail, e-mail, Fax on Demand, kiosks, Internet, telephone, walk-in, CD-ROM, etc. What have you learned about the costs of delivering services to customers using these different systems?

WALLACE:

Breakdown of comparative costs follows:

a. **It costs IRS $3 per call for the public to call into their toll-free number and for IRS to fill the request. The cost to IRS for the public to use the Internet to access and use forms is 1 cent, a difference of 300 to 1.**

b. **The costs to create forms on Internet have gone down, but the cost to fill phone requests remains the same.**

c. **It costs IRS $2.50 to make and distribute to public libraries each CD-ROM containing 5 years of tax forms, instructions, and publications. This is less than it takes for IRS to respond to one telephone call. The IRS also sends tax CD-ROMs to the depository libraries. They can mount them on their PCs or allow customers to check them out.**

d. **They found that kiosks are very expensive; ATMs are cost-effective**

Final Comments from Wallace

The answer to public accessibility is *not* the Internet; it is multimedia. Delivery mechanisms must meet the individual needs of the customers; no one size fits all.

Interview Questions for Preservation Specialists:
Evelyn Frangakis and Abby Smith
(November 10, 1998)

1. How long have you been in your current positions? Please describe your current job responsibilities and duties. What portion of the following skills, experience, and knowledge do you use to perform your job: technical, administrative, analytical, and other?

2. What are the key problems associated with digital preservation?

3. What key policy, organizational, economic and other non-technical issues need to be addressed or solved to facilitate digital preservation?

4. What technological strategies or models have various organizations such as the Association of Research Libraries, the Digital Library Federation, National Archives, etc., identified to address these problems? Evelyn, one of the NCLIS staff mentioned that NAL has established a structure or framework that addresses this problem. Could you please talk more about that? If you have any handouts you can fax to us, that would also be helpful. Abby, can you describe some of CILR's recent efforts to address the issue of digital preservation, including the survey by Jeff Rothenberg of the RAND Corporation?

5. What do we know about specific file formats or mediums that might facilitate digital preservation such as SGML, CD-ROM, etc.?

6. Are there any important preservation issues that we have not addressed in the above-listed questions? If so, please discuss them.

7. Could you please refer us to any important articles on this topic that have been published in the last year?

Summary of Notes from Conference Call with Two Preservation Specialists: Evelyn Frangakis (NAL) and Abby Smith (Council on Library and Information Resources)

1. How long have you been in your current position? Please describe your current job responsibilities and duties. What portion of the following skills, experience, and knowledge do you use to perform your job: technical, administrative, analytical, and other?

ABBY SMITH (CLIR)

- **Been with CLIR since Sept. 1997 as director of programs.**
- **Provide program coordination among the four areas: economics of information, leadership in libraries and archives, digital libraries, preservation and access.**
- **Her primary program responsibility is in preservation and access in libraries, traditional and digital.**
- **10 staff members; 6 professionals, 4 admin. support staff.**
- **Spends 75 percent of time on policy-related issues and the remaining 25 percent of time spent on administrative functions (i.e., coordinating publications program)**

EVELYN FRANGAKIS (NAL)

- **Been in current position since January 1997. She is NAL's first preservation officer.**
- **Duties: plan, direct, and implement agency-wide programs for ensuring permanent and future accessibility of the foremost national collection of materials in agriculture.**
- **Coordinates activities with other national efforts, such as the U.S. Agricultural Information Network (USAIN). Established in 1988, USAIN provides a forum for discussion of agricultural issues, takes a leadership role in the formation of a national information policy as related to agriculture, makes recommendations to the National Agricultural Library on agricultural information matters, and promotes cooperation and communication among its members. NAL participates in implementing USAIN's preservation plan for print materials, *A National Preservation Program for Agricultural Literature*. The USAIN Preservation Steering Committee, on which Frangakis serves, oversees this national cooperative plan. Under the auspices of Cornell University, the USAIN plan has received two NEH grants to microfilm core national and state agricultural literature. To date, 15 states are participating in these grants. Other components of the national plan and program include determining what are the important archival and manuscript collections of agricultural materials and what approaches can be used for their preservation.**
- **NAL efforts include developing their own preservation program that includes a traditional preservation program and digital efforts.**
- **Digital efforts are two-pronged: conversion of brittle paper materials into digital products by working with best available guidelines to implement good preservation practices (this digital**

material will be available on the web); develop a program to preserve USDA digital materials (i.e., materials that are born digitally).

- **Helps develop preservation policies and analyze other policies that come to NAL or USDA that affect preservation of the collection.**

- **Time spent on different types of work at different times. Duties fairly split among policy, technical, administrative, analytical areas.**

- **Staff consists of two assistants at present. However, NAL leverages its preservation resources by establishing cooperative inter-institutional agreements and contributing funds to sister institutions in order to further develop the USAIN preservation program (e.g., cooperative agreements with Cornell University to establish copyright clearance for core historical literature, developing NEH grant proposals).**

2. What is the distinction between digital preservation and permanent public accessibility of electronic records (as it relates to, for example, the Federal Depository Library Program)? How long is "long-term" preservation vs. "permanent public accessibility?"

FRANGAKIS

- **Some background from the USDA perspective: The USDA Digital Publications Preservation Steering Committee was established this past summer to oversee the implementation of the plan, *A Framework for the Preservation of and Permanent Public Access to USDA Digital Publications.* This group met for the first time in October 1998. There was a discussion of definitions in order to place into context the universe of material covered by the*Framework*. Publication was defined as "a data or information product prepared by the USDA in digital form intended to be disseminated to the public." The *Framework* defines preservation as "the act of permanently maintaining and making available data or information, with all original content intact."**

- **Other experts, such as Don Waters of the Digital Library Federation, talk about preserving integrity and ensuring persistence of digital information. The Commission's SGML report talks about preservation goals such as enhancing the long-term preservation of and access to information of enduring value for as long into the future as possible.**

- **THE CPA Digital Archiving Task Force was charged to investigate the means of ensuring "continued access indefinitely into the future of records stored in digital electronic form."**

- **Concept of preservation in traditional preservation world examines the concept of permanence, but in the print world the concept of permanence relates to chemical inertness and mechanical durability. These concepts do not translate easily into a digital world. In the digital world, we are no longer dependent on original copies (i.e., original copies do not have the same meaning.).**

- **Within NAL, they use digital preservation fairly loosely to speak about both digital efforts: conversion of brittle materials and USDA digital publication preservation efforts. Not sure professionals in the library and preservation community have a common understanding of what it means, even though it is important to come to a common understanding. GPO defines permanent access as "Government information products within the scope of the Federal**

Depository Library Program that remain available for continuous no-fee public access through the program." The 1996 GPO report to Congress, *Study to Identify Measures Necessary for a Successful Transition to a More Electronic Federal Depository Library Program*, states that "'preservation' means that official records of the Federal Government, including Government information products made available through the FDLP, which have been determined to have sufficient historical or other value to warrant being held and maintained in trust for future generations of Americans, are retained by the National Archives and Records Administration (NARA)."

- **At NAL, the mission of its preservation program is "to preserve and ensure access to the intellectual content and physical composition of agricultural works of national and international importance indefinitely into the future." No timeframe is mentioned because no one at this time can say how long into the future information will be needed.**

SMITH

- **There is no standard accepted method of ensuring long-term access to digital information. She described preservation goals as permanent or persistent or perhaps more accurate to say that one of the primary goals of preservation is to set up systems that "sustain predictable levels of loss."**

- **Difference between preservation in a digital world and in an analog world is that in a digital world, information is completely independent from the medium on which it is carried. In an analog world, people try to preserve the media in which information is recorded. No analogy in the digital world. No concept of preserving the artifact as an artifact that has its own level of information.**

- **Problem in digital preservation is that there is no way to ensure that digitally stored information can move from one software-hardware configuration onto another through generations. Two problems:**

  (1) Problem of instability of media in which information is stored (don't know how long CDs or other media will last)

  (2) More serious issue from CLIR point of view is that software/hardware configurations on which information is stored become obsolete so quickly that even when you migrate information from one system to another, much of the information is lost (data and functionality).

- **CLIR tries not to talk about "digital preservation" but they cannot avoid it.**

- **Other countries may view preservation differently. England interested in American concept of digital archiving -preserving the integrity of data; that is, information is original and authentic and it can be proved that data have not been changed. According to Smith, scientists say that we will solve the problem of authentication, but hasn't been solved thus far.**

Permanent Public Accessibility Issues (FRANGAKIS)

- **Federal agencies relying on FDLP to serve an "archiving" function for retrospective materials.**

- **Question of how to preserve digital information indefinitely into the future has not been answered. CLIR and NAL are discussing strategies by opening up dialogue and promoting research in this area.**

- **Digital Archiving Task Force Report discussed ensuring the integrity and long-term availability of digital information through migration. Information on CD-ROM and other media is in a format that may or may not be readable into the future due to hardware/software obsolescence. Even if media could be preserved, no guarantee that it would be accessible and functional indefinitely into the future. No answers anytime soon.**

3. What are the key problems associated with digital preservation?

SMITH

- **Additional problems: fragility of media and platform dependence issue**

  (1) Two additional issues: difficulty of understanding what we can and cannot do under current copyright law. Latest iteration of copyright law clarifies copyrighting for preservation purposes, but still unclear for access purposes. Library of Congress is currently studying this. Copyright law may not have any implications for Government information but many vendors create derivatives of Government information and copyright it. Government should never be in the position of depending upon the private sector to preserve some of this information.

  (2) Any transmission link is as strong as the weakest link. The weak link in the transmission of electronic information is not technology; it's human beings. Human infrastructure is not in place yet that would ensure permanent access.

FRANGAKIS

- **Agrees that human error is far more prevalent than technology error. Key problems in digital preservation are infrastructure, technology, and media. Humans need to learn to live, exist, and operate in a digital world. It's still very new to us as compared to the print world.**

4. What key policy, organizational, economic, and other non-technical issues need to be addressed or solved to facilitate digital preservation?

SMITH

- **Digital Archiving Task Force Report met with consensus in the community. CLIR has been lobbying people to pay attention to these issues. No single community has stepped forward and said this is our problem and we are going to work on solving the problem. Therefore, one of difficulties is that organizations that collect, preserve, and disseminate information, as opposed to create information, find themselves in this digital world in which the preservation of that** information must be thought about at the creation stage, not after the fact. Need to forge partnerships with the computer science industry, publications industry, scholarly and scientific publishing communities to address some of these issues.

- One of perhaps intractable core infrastructure problems is the issue of creating a failsafe archives mechanism for materials that disappear from the web. What happens when information is created and the people who created it do not have responsibility for preserving it? Who is going to authorize a failsafe archive that is going to take and preserve that information for the public good? This would be the equivalent of libraries, but so far, it doesn't exist and no one has expressed interest in creating it at the Governmental level.

- CLIR's role in above: Not in a position to do much more than alert people about the problems. NAL and literature that agriculture creates are one of few examples where this failsafe archive might work because NAL is a national library dedicated to one type of literature. Not the case with other literatures except for medicine (NLM). CLIR is looking for partners like ARL to address this issue, but has not made much progress. CLIR has been fairly effective in talking to National Science Foundation (NSF) in getting their second round of digital library initiatives grants to address the issue of preservation as a distinct issue. No luck with archiving part.

FRANGAKIS

Refer to the report Framework for the Preservation of and Permanent Public Access to USDA Digital Publications by Paul Uhlir, November 1997 (listed in bibliography).

- Three areas of issues:

  (1) management structure and organizational relationships within and outside USDA,

  (2) funding of program on a permanent basis (keeping in mind the need to minimize costs of access and retrieval to information users), and

  (3) identification of legislative or administrative actions or policies required to implement a digital publications preservation program.

Sub-Issues: Needs and Considerations for USDA

- Inventory and life cycle management: a comprehensive inventory of all departmental digital information products and how they are being managed needs to be conducted. A system for tracking the creation of each new USDA digital information product that is intended for public distribution needs to be recommended.

- Technical requirements: identification of acceptable document formats and media, and related standards, for long-term retention; development of processes for transferring all digital publications from old storage media to new media; establishment of one or more separate back-up facilities for all digital publications; review and establishment of system security protocols; review and establishment of system interoperability requirements; and identification and review of other permanent digital preservation and access initiatives.

- User access and retrieval: provide equitable access and retrieval services to all potential users; minimize technical, regulatory, and cost barriers to access and retrieval; assure the integrity of

the information that is made publicly available; make the information as easy to find and use as possible, with directories and documentation (metadata), consistent with the Government Information Locator System, while protecting confidential or proprietary information; and establish a means for users to provide feedback and a mechanism for responding to user feedback.

- **Status: Moving ahead with implementation. USDA CIO accepted the report, and under her guidance NAL established a national steering committee made up of representatives from USDA and from agribusiness, research library community, USAIN, Federal partners, etc.**
    - **Group will meet on a quarterly basis for first 2 years.**
    - **Will establish test groups to explore issues such as inventory and life cycle management, technical requirements, and user access and retrieval, as well as funding issues.**
    - **Hoping to get funding for a pilot project and then take entire framework and test it on an agency within USDA to see how manageable Framework will be for full-scale implementation.**

5. What technological strategies or models have various organizations such as the Association of Research Libraries, the Digital Library Federation, National Archives, etc., identified to address these problems? Evelyn, one of the NCLIS staff mentioned that NAL has established a structure or framework that addresses this problem. Could you please talk more about that? If you have any handouts you can fax to us, that would also be helpful. Abby, can you describe some of CILR's recent efforts to address the issue of digital preservation, including the survey by Jeff Rothenberg of the RAND Corporation?

SMITH

Three CLIR initiatives:

- **Commissioned report by Jeff Rothenberg from RAND Corporation on emulation. [Emulation is the process of imitating one system with another so both accept the same data, execute the same programs, and achieve the same results.] Report complete and may be published by January 1999. Since report is highly controversial, CILR will partner with National Research Council to convene a group of computer scientists to engage Rothenberg on issues of emulation to stimulate research. Report describes the weaknesses of migration and the strengths of emulation and sets up a research agenda to develop emulation.**
- **Commissioned an analysis of migrating file formats to do a risk assessment associated with those file formats during migration. Study commissioned from Cornell using data from the Mann Library (agricultural library) and will use numeric file formats and databases and text formats. Report will be finished by September 1999 and will include analysis and a template that others can use for doing a risk assessment of migration of those file formats. Purpose: to stimulate further research.**

- **Identified a computer scientist at Carnegie-Mellon University (CMU), John Ockerbloom, who has developed a system of file conversion; type of migration that converts web-based materials to different file formats, called TOM (Typed Object Model).** (www.cs.cmu.edu/afs/cs.cmu.edu/user/spok/www/defense/index.html). **He developed this as part of his thesis. Working with CMU to see if they can bring his concepts into fuller application to do an assessment about its scalability.**

- **Log on to publications on CLIR site, which summarize Rothenberg report. Water's report addresses definition of digital preservation.**

6. What do we know about specific file formats or mediums that might facilitate digital preservation such as SGML, CD-ROM, etc.?

SMITH
Nothing to say about this

FRANGAKIS

- **For conversion efforts from paper to digital images, SGML serves as an important descriptive markup tool. Thinks it will be valuable to them. CD-ROM serves specific functions in NAL's Preservation Program but right now has a limited life expectancy. NAL is looking for things that are non-proprietary, platform independent, things that will allow user full access to the content of digital products. They know that media will continue to change.**

7. Are there any important preservation issues that we have not addressed in the above-listed questions? If so, please discuss them.

No.

8. Could you please refer us to any important articles on this topic that have been published in the last year?

1. **Margaret Hedstrom at the University of Michigan School of Information believes that there is a reliable way of preserving, with predictable levels of loss, migration of digital information, through ASCII. It happens now. She is a leading authority in the field.**
2. **Check ARL's website.**
3. **Coalition of Networked Information - Dedicated to computer use in education.**www.cni.org
4. **White paper on access authorization. Developing infrastructure for digital libraries.**
5. **www.RLG.org/preserv - (includes information onHedstrom's research).**
6. **Reference Model for Open Archival Information Systems:** http://ssdoo.gsfc.nasa.gov/nost/isoas/ref_model.html **White Book, issue #4, Sept. 1998- preservation of digital information; technical recommendation for use in developing consensus on what's required of any archive to provide permanent preservation. Hoping to turn this into an ISO standard, but now just in draft form.**

Interview Questions for Information Resources Specialist:
John Bertot
(November 18, 1998)

1. What are the primary obstacles to successful information resources management (IRM) practices in the Federal Government, in priority order? What changes should occur to eliminate or alleviate the barriers?

2. In your article on the impact of Federal IRM on agency missions, you mention the reinvention of IRM to be the key link between agency information and agency performance. Can you describe a small and a large Federal agency that currently meet this goal in spite of the lack of a concentrated, coordinated Federal IRM policy? Why are they more effective than other agencies?

3. We have found in our interviews with Federal agency personnel that many agencies have not come to terms with two important issues: information life-cycle management, and the concept of permanent public availability of electronic Government information. What are some of the larger policy issues that have prevented agencies from addressing these important issues?

4. In our site visits to Federal depository libraries in the D.C. metropolitan area, we are keenly aware that the problems and issues faced by FDLs here are different than they might be for FDLs located in more isolated, rural areas. Based on your survey of public libraries connected to the Internet, what are some of the key concerns or problems faced by users who want to access electronic Government information who live in small, isolated communities with limited resources?

5. Based on your experience in working with Federal Government agencies that are analyzing their web usage, what are the key questions they want to answer and how are they using the data? Are they analyzing the websites for technical or content-related purposes? What techniques, other than log file analysis, are being used? What agency units or departments (e.g., IT, program areas, CIO) are involved in the process?

Interview Questions for Information Resources Specialist:
Charles McClure
(November 24, 1998)

1. What is the current status of IRM policy since your 1994 article, "Federal Information Resources Management: New Challenges for the Nineties?" Specifically, has OMB or another appropriate agency begun addressing the issue of developing a broad vision that reflects the evolving role of IRM within the Government with general guidelines and standards for all Federal agencies to better manage the life cycles of information? If so, how?

2. We have found in our interviews with Federal agency personnel that many agencies have not dealt with two important issues: information life-cycle management, and permanent public accessibility of electronic Government information. What are some of the larger planning, policy, and organizational issues that are preventing agencies from addressing these important problems?

3. Could you talk a little more about the design-based assessment for evaluating Government websites that you described in the 1997 Proceedings of the 60th ASIS annual meeting? What were the technical and policy problems in the design-based assessment? What specific policy issues did you assess?

4. What is the status of electronic record management (ERM) guidance for Federal agencies since the 1998 conference? Is there another conference planned next year? What specific guidance are the NARA Working Group and other agencies planning?

5. What would you say are the top three Federal IRM challenges in the next decade?

Summary of Notes
Interview with
John Bertot, Associate Professor, SUNY/Albany

1. What are the primary obstacles to successful IRM practices in the Federal Government, in priority order? What changes should occur to eliminate or alleviate the barriers?

- **IRM is not on the radar for top-level agency managers and it will never be raised up to the point of where it matters.**
- **IRM has been lost in the transition to the CIO. CIO is the next iteration of IRM. There has been 20 years worth of talking and it has never seemed to make it out of the administrative trenches of the agencies. Typically, IRM has been a low-level position located within the printing, reprographic, or records management units of agencies. IRM is not viewed as strategic or long-range function.**

2. In your article on the impact of Federal IRM on agency missions, you mention the reinvention of IRM to be the key link between agency information and agency performance. Can you describe a small and a large Federal agency that currently meets this goal in spite of the lack of a concentrated, coordinated Federal IRM policy? Why are they more effective than other agencies?

The article is based on Bertot's dissertation.

The purpose of the survey was to get an internal assessment on what IRM is trying to do, and to get an external assessment of what IRM is doing. Bertot tried to compare the two in relation to strategic planning.

Generally, those agencies that understood IRM tended to be the smaller agencies. There is a scale factor, and much more attention was given to IRM in the smaller to mid-sized agencies. FDIC and the Peace Corps were doing some interesting things.

Other factors relating to size:

- **Small to medium-sized agencies have fewer programs and staff; with fewer administrative layers, there are fewer communication and organizational barriers.**
- **One can more easily work collaboratively in a small organization.**
- **Top administrators are not as removed from day-to-day operations and can ideally participate more in implementing new initiatives because they have a vested interest in the projects' working.**
- **There is less oversight from OMB and Congress for smaller agencies. The smaller agencies tend to have less mandated legislation that can interrupt work, so they tend to have higher motivation to finish projects.**

- **Larger agencies tend to have the greater expertise. Smaller agencies may have better levels of management, but they do not always have the experts.**

Models

- **As far as larger agencies were concerned, Treasury was moving along. However, many have a central agency component that is not very powerful, althoughsubagencies might be very powerful. For example, Treasury has IRS and the FBI, and they are pretty powerful players.**

- **Another agency that has done a great deal of work with IRM is EPA. EPA, along with AID, are strange models. They have large data shops, but they are all contractors. The model that is adopted for information and information technology management makes a difference. Whether IRM is in-house or out-sourced has a real impact on how it is implemented inside the agency, and the choice of contractor really matters. Another aspect that makes EPA unique is that a large portion of their system management function occurs in North Carolina.**

3. We have found in our interviews with Federal agency personnel that many agencies have not come to terms with two important issues: information life cycle management, and the concept of permanent public availability of electronic Government information. What are some of the larger policy issues that have prevented agencies from addressing these important issues?

- **The biggest barrier to successful implementation of IRM is that agencies do not view information as a resource. There is little or no understanding of the concept of information as a life cycle; it's not linear.**

- **IRM policy initiatives and legislation do not fully address the life cycle of information. It is mentioned in some of the policies developed within the last 20 years. but not adequately addressed. Most policy initiatives focus on the technology side of the issue, probably because it is tangible.**

- **The web has created problems that have not been handled. Many agencies believe that if it is up on the web, it has been published. Along with the pressure over Title 44 Reform, there is no discussion of preservation and public accessibility. Should we move to an electronic FDL program? What does that mean and how will that work?**

- **GPO is under attack for being deficient in distributing Government information to the public. One reason is because GPO (centralized print environment) is so slow, and the technology allows distribution to be handled more efficiently (decentralized, electronic environment). Agencies are under the gun to cut costs, so by putting information on their websites and contracting printing jobs with outside sources, they don't have to go through GPO.**

- **Going electronic does offer potential. The back end means, however, that anyone with access is a vehicle for getting Government information. Putting information up on the web does cut costs, but we have not figured out a systematic way of distributing Government information to the public, making sure it is preserved for posterity and provided to the public on a long-term basis.**

4. In our site visits to Federal Depository Libraries in the D.C. metropolitan area, we are keenly aware that the problems and issues faced by FDLs here are different than they might be for FDLs located in more isolated, rural areas. Based on your survey of public libraries connected to the Internet, what are some of the key concerns or problems faced by users who want to access electronic Government information who live in small, isolated communities with limited resources?

Recently Bertot conducted some research in rural Pennsylvania to study public libraries. Public libraries in rural communicates face large problems with access and technology.

- **These areas are composed of populations that tend not to have computers in the home, so they rely totally on the library for Internet access.**
- **The public libraries tend to only have one station in these rural areas.**
- **Computers are slow; libraries have 56 K modems, but they do not necessarily have access to a 56 K Internet provider.**
- **Patrons can only reserve computers in half-hour time slots.**
- **Libraries may or may not have access to print equipment.**
- **Staff training is minimal due to cost and little access to computers. (Models like GPO Access have been useful, but patrons and librarians still need one site for access to all Government agencies rather than many individual websites. Most agencies have more than one site.)**
- **Staff are competing with patrons for access because there are only one or two computers.**
- **Libraries cannot always pay for printing services. Some are passing the cost to the user, but they are trying to avoid that approach (e.g., first 5 pages are free and then it is 10 cents per page).**

5. Based on your experience in working with Federal Government agencies that are analyzing their web usage, what are the key questions they want to answer and how are they using the data? Are they analyzing the websites for technical or content-related purposes? What techniques, other than log file analysis, are being used? What agency units or departments (e.g., IT, program areas, CIO) are involved in the process?

- **Bertot has not seen agencies doing very much with their web statistics. Part of the reason is that they do not want to make the information public. For example, one agency had a request for all of their agency log file records. They panicked and rejected the request on the condition of privacy. If one can access the log, one can get IP addresses, and they were afraid that someone would use this information as a reverse directory mailer.**
- **A second reason is that sometimes it is difficult to get the statistics if a different administrative unit within the agency is managing the website. They won't necessarily turn them over to the unit that needs the statistics because it crosses administrative barriers.**

- A third reason relates to records management of log files. Should we "schedule" log files for NARA? NARA doesn't want this to happen either. They would then have to schedule the information for retention. However, this raises the question of whether the logs are public information.

- It was not until recently that there was a demand to look at web statistics as a management and strategic decision-making tool. Managers are still learning how to use them. Right now, these statistics are used primarily by network and system administrators.

- Bertot wonders how many agencies are doing web analysis and evaluation given Circular 130-A, which cautions agencies not to do so if it creates a paperwork burden for them.

Summary of Notes
Interview with Charles McClure,
Distinguished Professor, School of Information Studies, Syracuse University

1. What is the current status of IRM policy since your 1994 article, "Federal Information Resources Management: New Challenges for the Nineties"? Specifically, has OMB or another appropriate agency begun addressing the issue of developing a broad vision that reflects the evolving role of IRM within the Government with general guidelines and standards for all Federal agencies to better manage the life cycles of information? If so, how?

IRM policy came and went and no one noticed:

- **GSA is mounting its CIO university effort to provide education and training to CIOs.**
- **IRM in Government policy is now whole world to CIO.**
- **Many agencies do not now know what to do with IRM.**
- **ITMRA (Information Technology Management Reform Act of 1996)—McClure thought this policy would strengthen IRM, but in reality, it took responsibility away from existing IRM people and gave it to CIO; it gave more attention to technology management.**
- **A few agencies don't know what to do with IRM staff since CIO is on board; in other agencies there is conflict between IRM and CIO functions.**
- **Eighty-two percent of technology efforts in agencies are currently focused on Y2K efforts.**

2. We have found in our interviews with Federal agency personnel that many agencies have not dealt with two important issues: information life cycle management, and permanent public accessibility of electronic Government information. What are some of the larger planning, policy, and organizational issues that are preventing agencies from addressing these important problems?

- **There is no staff or time to devote to standards and interoperability.**
- **Even if agencies had staff and time, staff need to upgrade skills and knowledge.**
- **Information life cycle and permanent public accessibility are not priorities for agencies; they don't seem to understand the issues.**
- **For example, GPO Reform Bill is dead in the water; no one in Congress cared about it.**
- **No one is concerned about long-term accessibility.**

3. Could you talk a little more about the design-based assessment for evaluating Government websites that you described in the 1997 Proceedings of the 60th ASIS annual meeting? What were the technical and policy problems in the design-based assessment? What specific policy issues did you assess?

They are now using more advanced website methodology (i.e., a 4-legged approach):

- **User-based: Usability testing; simulates user searching that is videotaped. With fairly sophisticated graduate students, they use scripted search analysis with a range of criteria. System and design staff are showing videotapes to so they can see the problems with searching information on specific sites. Agencies have used different audiences to do testing based on objectives and purpose of sites.**

- **Log analysis: Using in-house scripts beyond WebTrends and Log Tracker that allow them to do cross-file analysis with access vs. error and browser files. Perl scripts allow them to dump selected variables in log files into SASS or SPSS. Commercial products do not do cross-log analysis well.**

- **Policy analysis: Internal policies (who's in charge) and external policies (e.g., Freedom of Information Act, public access, privacy issues, etc.).**

- **Management assessment: How is agency department organized for web maintenance and evaluation? Information is gathered through interviews and focus groups with managers.**

4. What is the status of electronic records management (ERM) guidance for Federal agencies since the 1998 conference? Is there another conference planned next year? What specific guidance are the NARA Working Group and other agencies planning?

- **Update: McClure and Tim Spreche are working on a new project, PARS- Public Access Rating System. The purpose of this project is to create a core set of performance measures and indicators (now being developed for four Government agencies) with public access criteria to help agencies rate their websites. Agencies will be able to determine the degree to which the site is publicly accessible. It's difficult to sell ERM by itself, so they are taking a public access approach.**

- **National Archives hasn't done much. Court ruling delayed 6-8 months.**

5. What would you say are the top three Federal IRM challenges in the next decade?

- **IT management policy development is on hold due to Y2K. No one currently knows how good or bad preparation is for this.**

- **How best to integrate and coordinate IT and IT management. Agencies do not have a good handle on this yet.**

- Issues of interoperability and standards that cut across all agencies. Need to be able to access Government information horizontally rather than vertically. (For example, for public access sites; GILS, gov.doc l, and one more; no way public can access specific information from one point of entry. GILS does not work the way it was originally conceived.)

- Lack of money for training and education. IRM graduate students' degrees are useful for about 1-2 years. After that, their skills are 50 percent out of date. Government agencies have well meaning people who don't have the knowledge and skills to implement policies. For example, agencies say they don't need to send copies of all products to GPO because they are on their website. Then you ask them will it be there in 6 months and they have given no thought to this issue.

Appendix I

Sample Agency Meeting Agenda
Electronic Government Information Products Assessment

Sample Agency Meeting Agenda
Electronic Government Information Products Assessment

Meeting with Health and Human Services Agency Representatives and Product Respondents

Tuesday, September 15, 1998
9:15 a.m.

9:15	Introductions	Westat, NCLIS, and HHS Personnel
9:25	Background and Purpose of the Meeting	Westat and NCLIS
9:30	General Questions and Answers • Sections A and B on the Questionnaire	Westat, NCLIS, HHS Personnel
10:00	Q and A to Sections C and D • Review Data Collection Procedures	NCLIS, Westat, HHS Personnel
10:30	Break	
10:45	Agency Discussion Questions (Discussion questions posted on NCLIS web site)	Westat and HHS Personnel
11:45	Adjournment	

Appendix J

Task 16

Assessment of Electronic Government Information Products

Statement of Work

Section J: Background and Objectives

Background

An "Assessment of Electronic Government Information Products" (hereinafter referred to as the "Assessment") is a research study being conducted through an interagency agreement between the National Center for Education Statistics (NCES) and the U. S. National Commission on Libraries and Information Science (NCLIS) on behalf of the Superintendent of Documents, U.S. Government Printing Office (GPO), pursuant to an Interagency Agreement between NCLIS and GPO, approved by the Joint Committee on Printing (JCP).

Information gathered from this assessment is to be used by the Superintendent of Documents to facilitate improved public access to Federal Government information made available to Federal depository libraries and the general public through the Federal Depository Library Program (FDLP). The assessment will

(1) identify medium and format standards that are the most appropriate for permanent public access;
(2) assess the cost-effectiveness and usefulness of various alternative medium and format standards; and
(3) identify public and private medium and format standards that are, or could be used for products throughout their entire information life cycle, not just at the dissemination or permanent public access phase.

Objectives

The contractor shall undertake research and data collection from Federal agencies in all three Branches, as well as solicit the opinions of selected knowledgeable experts. The contractor shall also complete an analysis of the data and opinions for the purpose of interpreting their general meaning and significance, including identifying broad emerging trends and patterns, and documenting findings, conclusions and recommendations in a deliverable final report.

More specifically, for a cross-section of Government information products, the goals are to: (1) determine in which format(s) and medium(s) such products are now produced, using which standard(s) if any (whether promulgated by official standards-setting bodies such as ISO, NISO, ANSI or FIPS, or voluntarily adopted through common agency practice, such as the use of file formats such as PDF or TIFF, or Microsoft Word or dBase); and (2) assess agency future plans for new or changed products, including the medium(s) and format(s) in which they will be disseminated for permanent public access.

The Superintendent of Documents will use the results of this work effort to continue to plan and implement the transition to a more electronic FDLP. The 5 major specific objectives are:

- First, with respect to electronic publishing practices and plans of Federal agencies (including ways in which the FDLP can best accommodate them), the objective is to provide an analysis of current practices as well as future plans for creating, disseminating, and providing permanent public accessibility to electronic information products, and to identify the standards for software, and electronic mediums and formats that are or will be used throughout the product's information life cycle, from creation to archiving, but especially by the time of the permanent public accessibility phase;

- Second, with respect to cost effectiveness of various dissemination mediums and formats that are, or could be, utilized, the objective is to gather information on standards (whether mandated or consensual) that will assist the FDLP in making near-term decisions regarding the cost-effectiveness of alternative mediums and formats for all FDLP participants. This information should also assist participants in long-term planning for permanent public accessibility and the collection and analysis of overall information life-cycle costs;

- Third, with respect to the practical utility of various electronic mediums and formats to depository libraries and the public, the objective is to identify preferred standards used in various mediums and formats that depository libraries will need to support;

- Fourth, with respect to utilizing standards employed in mediums and formats that can be used throughout all stages of the information life cycle (including creation, composition, computer terminal display, encryption, secure digital signature with non-repudiation and secure transmission capabilities), electronic dissemination, but especially permanent public accessibility, the objective is to assess standards for basic security services in order to provide for secure and reliable transmission and document interchange; and

- Fifth, with respect to standards that are being developed and used in the private sector, the objective is to identify existing and planned standards for the purpose of determining what the FDLP must do to accommodate their adoption by the agency in terms of hardware/software requirements, staff and user education and training, and budgetary impacts.

For the purposes of this survey an agency Web site is considered an electronic information service, and one or more products may reside on the service. Web sites, per se, are not considered individual Government information products.

Section II: Subtasks

The contractor will be provided background materials to assist in conducting the required work, including a suggested data collection instrument, examples of completed forms, selection criteria for finalizing the list of agencies and products to be surveyed, and additional materials (see Appendix C). Working with representatives of NCLIS and GPO, the contractor shall undertake the following specific activities and complete them by the scheduled dates shown below. A detailed explanation of each activity appears in Appendix C:

Activity No.	Activity Title
1	Prepare a Plan of Action
2	Develop a Data Collection Plan identifying preliminary agency and product selections, and a schedule of interviews, focus group meetings and site visits, using Appendix B as a guide
3	Conduct interviews, focus group meetings and site visits; revise preliminary agency and product selections if necessary
4	Pre-test the Data Collection Instrument (Appendix A); make changes if necessary
5	Create a Baseline Inventory Products Data Base ready to populate with actual data
6	Collect the data from Federal agencies, experts, and literature references
7	Prepare tabulations and summaries based on the populated data base and analysis
8	Recollect and retabulate if/as necessary
9	Prepare a draft Report documenting findings, conclusions and recommendations, and provide oral briefings on request; obtain feedback from Government
10	Prepare a final Report and submit to the Government

Section III. Deliverables And Key Events Schedule

Deliverables, in terms of their delivery in weeks after award, are shown below. For each of the deliverables, the contractor shall provide six copies to the COTR. [This is the original schedule and does not reflect the changes that were later negotiated between NCLIS and Westat.]

Deliverable	Weeks After Award
Government-contractor planning meeting	1
Plan of Action approved	2
Approval of prelim. agency/contact list	3
Completion of interviews/meetings/site visits	12
Approval of Data Collection Plan	12
Agency data collection instruments transmitted to agencies	13
Actual data collected	16
First oral briefing	17
Tabulations/summaries completed	17
Recollection and retabulation completed	19
Second oral briefing	19
Draft Report submitted	20
Final oral briefing	22
Final Report submitted	25

Section IV - Management Reporting Requirements

The contractor shall provide the following reports for the purpose of maintaining a detailed record of work ordered and funds spent on this task order:

- Cost Proposal;
- Schedule of Deliverables
- Task Order "Log" or menu [monthly];
- Monthly Cost Report;
- Task Invoices; and
- Reimbursement Report [monthly].

Details pertaining to these and ancillary reporting activities follow.

Cost Proposals

The contractor shall provide a cost proposal to accompany the contractor's response to the work identified. The cost proposal will be reviewed and approved by the COTR and the contracting officer, who will communicate the approval to the contractor. [Should there be a need to modify the cost proposal, the COTR and the contracting officer will communicate that instruction to the contractor's Project Director, who shall submit a revised cost proposal for approval.]

Task Order "Log"

The contractor shall provide a monthly report indicating the tasks ordered by the COTR and the contracting officer to date and showing the internal (to the contractor) tracking number assigned to each. The contractor shall insure that this report includes such summary information as: the contractor staff member assigned as task leader; date(s) associated with the task, including 1) date assigned to the contractor; 2) date scheduled for completion of the task; and 3) upon completion, date of invoice(s) for services rendered in support of the task.

Monthly Cost Report

The contractor shall provide a monthly report to the cotr and the contracting officer as specified under the terms and conditions of the contract and detailed in the proposal. As part of the monthly report, the contractor shall include a list of deliverables and their anticipated due dates.

Reimbursement Report

The contractor shall provide the COTR and the contracting officer with a status report on reimbursement activities. The contractor shall insure that the report includes the names of the consultants and participants and any others who are to be reimbursed for expenses incurred, as applicable and approved by the COTR and the contracting officer. The contractor shall include: 1) the subtask for which the person is subject for reimbursement; 2) the amount subject to reimbursement for each subtask in which the person is a participant; 3) the date each participant submitted the necessary reimbursement form for each subtask; 4) the date the participant is scheduled to be issued reimbursement for each subtask; and 5) cumulative reimbursement totals to date, updated.

Period of Performance

The period of performance for this task is eight months from the date the award is signed.